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The Jackson Lecture.¹

PRIMITIVE MEDICAL ART AND PRIMITIVE MEDICINE—MEN OF AUSTRALIA.

By L. P. WINTERBOTHAM,
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WHEN some years ago I had the privilege of occupying the office that our president has so happily filled this year, I had no thought that in a few years' time I should have the honour of being asked to deliver this oration here tonight.

It is well in the rush of life today that we should pause for a short while and pay tribute to our fellows who have gone before us, and in passing have left on those of their day and generation a mark that time has not yet been able to obliterate. We should also, as a profession, take stock of ourselves from time to time, to see if we measure up to the standard—the high standard—that has been set us by our forefathers, not all of whom, no matter how they may have deserved it, can we commemorate in the manner that we do tonight the memory of Dr. E. Sandford Jackson.

Let us then remember that our work is an art and not a trade—that our patients come to us for help and that, like our worthy predecessors, we must hold out a willing hand to our fellow men in their adversities, without counting the cost to ourselves or looking for the reward.

¹ Delivered at a meeting of the Queensland Branch of the British Medical Association on October 6, 1950.

The following verse from one of Kipling's poems, entitled "A School Song", seems to me to express fittingly the purpose for which this Jackson lecture was instituted.

Let us now praise famous men,
Men of little showing,
For their work continueth
And their work continueth,
Broad and deep continueth,
Greater than their knowing.

The subject I have chosen for my address tonight is "Primitive Medical Art and Primitive Medicine—Men of Australia". Before starting on it, however, I should like to draw attention to the grave neglect that has been shown, when advantage was not taken of the wonderful opportunity of studying at first hand that very interesting people, the Australian aborigines, whose now almost extinct stone-age culture was there under our very noses for inspection; we, too stupid, or blind, or preoccupied with our own material interests, failed to make use of the opportunity presented.

These people were not a stupid people; their grade of intelligence was not low. They had adjusted themselves remarkably to their surroundings; they had come to at least a stable form of tribal life (which we have not); they had a very fixed and rigidly enforced moral code (which we have not); they were a happy, care-free crowd, with no anxiety about stock exchange or markets or labour conditions (which we are not). They had learned to live under conditions in which the white man would have died, and did—and all this in spite of a 20% less cranial capacity than that of the European.

They made possible by their goodwill and bushcraft the occupation and development of our out-stations, that in this very development upset all the tribal customs and laws, beliefs and traditions of this ancient people, and I am

afraid that we have given them very little of worth in exchange. Had the aborigines been armed with weapons comparable with our own, I am sure that the treatment meted out to them would have been of a very different character from that which they received.

The Medicine-Man.

The medicine-man was the most important figure in the aboriginal medical world (Elkin, 1945), and such persons did not just happen along. They were picked men, chosen by the elders in conjunction with the tribal medicine-men as being fit and suitable for the position. (We ourselves quite recently proposed to set up a board of selectors for a like purpose.) However, some men did offer themselves for the position, stating that they had an inner experience of being called—a vision; and if this claim were accepted by the qualified medicine-man, the newcomer too was eventually trained. But all had to undergo this training before being entrusted with the esoteric lore belonging to his craft.

The medicine-man was an outstanding character—a clear thinker, a man of decision, one who believed and acted on his belief that he possessed psychic powers, the power to will others to have faith in themselves. (Here I am quoting freely from Professor Elkin's "The Australian Aborigines".) They were men who had passed through a very striking ritual. They had been admitted to a body of esoteric magic; they had been given much insight into the working of the minds of their fellows (especially the sins of omission and commission); and they accumulated a store of information regarding these same tribesmen, and used it to the detriment of the offenders. They noted the attitude of the local party towards other groups, so that if they had to "divine a murderer" at an inquest, they were able to attribute the crime to a group or person that their own group would be willing to suspect or blame. They also claimed to predict or control natural phenomena, such as the weather, and they amassed a fund of knowledge that usually guided them aright. Finally they were recognized by their own tribe as possessing powers to outwit malign spirits and persons, to control the elements, to have foreknowledge of an enemy's approach, and to keep sickness away from the camp.

Certain other qualifications were necessary for their work. They had to acquire skill in sleight of hand and in ventriloquism (and some observers reported that this skill in "palming" was sufficient to defy detection even by European observers). Also they required training in the proper methods of rubbing and sucking, in examining the bodies of the dead, in conducting inquests, which included questioning the corpse, and in seeing spirits.

Their work depended on the possession of an animistic and spiritual power. It was derived from the eternal dream-time, the sky-heroes, or great mythical Nature-spirits.

If we accept for the moment the animistic and spiritual philosophy of life of the aborigines (animism is the attribution of spirit or soul to inanimate things), the medicine-men performed a very valuable function in individual and social life. They had behind them the faith and belief of the community. They were not as a class a lot of impostors.

Such a medicine-man was usually reserved in his attitude, but was well liked. He enjoyed no special privileges. He lived the ordinary family and social life of the tribe and took part in its regular and ceremonial life. The medicine-man's task in life was to restore faith in life, where that faith had been lost, and so restore a sense of well-being. Indeed, the functions of the medicine-man were all life-giving in nature. He restored life by getting rid of sickness or by recapturing the straying soul, he was the link with the unseen spirit world and the sky, from which life had come, and he could find the cause of illness and death and so enable the group to readjust itself after the disturbance to its thought and social life which resulted from those events.

Brough-Smythe (1878) writes:

Belief and hope are often more powerful in their effects than the medicines of the pharmacopoeia. The native believes in the curative power of his vapour

bath, his decoction of Geranium, his bleedings, his kneadings and pressings and trappings; the sucking of the parts affected, the existence of pieces of wood and twine or bone in his body; in the power of the doctor to extract them, and in the wild incantations and dances of the old men. And the hope which is engendered by his unflinching faith, strengthens him and he recovers.

In presenting to you the above picture of our "opposite number" in the community I have drawn largely from Professor Elkin's researches; but it is only right to state that another authority's estimate does not offer such a favourable summing-up of the "doctor's" character. I refer to Dr. Roth, who wrote in 1897. Both men had first-hand opportunities for study. Roth makes the following comments on the medicine-men of the tribes of whom he wrote.

They may be on friendly terms with one another and may consult among themselves when necessary . . . at heart, nevertheless, they do not trust one another; they are really a bad lot, and it is only a common fear that binds them together; without them the effects of the "munguni" or death-bone would be harmless.

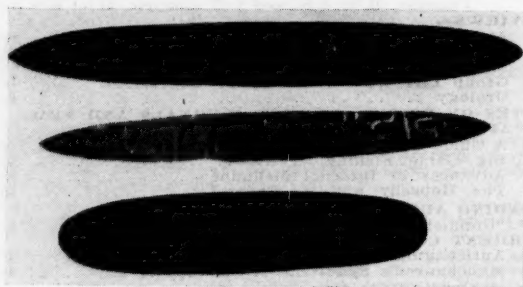


FIGURE I.

Wooden *tjurunga* as carried by Kurdaitsja to make him invisible.

Roth was a physical anthropologist and interested more in material culture. On the other hand, Elkin is a social anthropologist and interested more in the inner life. Further, the areas in which the two men worked were far apart and the tribes with which Roth was intimate are now extinct, and those about which Elkin writes are, I am afraid, fast becoming so—at any rate in their old tribal beliefs and customs.

Elkin points out that there were two types of magicians, the sorcerer and the medicine-man proper. The sorcerer was the worker of evil, the taker of kidney fat, the stealer of the soul, and a cause of death—an individual rarely found, whose claims to the performance of successful operations were extravagant, gruesome and contradictory—such for example, as the removal of kidney fat without the victim's knowledge and without leaving any sign of a wound. Note that the fat attached to internal organs was regarded as a special source of vitality and strength, whether applied to a spear or the body, and was much sought after.

Does such a sorcerer really believe his tale? Possibly he does in time really think that he has caused the death attributed to him; but his reputation makes him a marked man, and sooner or later he will be sought after as the cause of the death of a member of another tribe, and this point will be decided by the medicine-man of that tribe, all unknown to himself, and he will be speared from ambush.

Except in the case of the very old or very young, the aborigines never admitted death from natural causes and the verdict was "death from some person, known or unknown"—evil magic from another tribe as a rule. So a vengeance party was formed and set out on its fearsome course and an endless chain of trouble started.

The fatal result of this refusal to accept the danger of contact with people suffering from infectious illness is

obvious in the case of pulmonary tuberculosis, of leprosy and of all infectious diseases, and explains the rapid spread of such diseases among all tribes. Especially is this the case where it is the custom to inhale deeply the last breaths of a dying person, thinking thereby to absorb his strength and virtue.

Three forms of magic are practised. (i) A rite is performed on a person's footprint or on something that has been in touch with his body in order to do damage to his health. (ii) An image of the person is made in straw and stabbed with a pointing stick, to the accompaniment of the appropriate chant, and put on hot coals. The belief is that the person so treated will be burnt up inwardly and so die. (iii) The third form is the most feared, most powerful and most widespread. It consists of "singing" alone or "pointing" accompanied by "singing". This is projective magic. Either bones (preferably one from a dead man) or sticks, both of which have to be properly prepared, can be used. Care has to be exercised in their use or the performer will be struck himself; the sun or moon must be behind the user and no waterhole in front. If he starts to tremble at the end of the rite, he realizes that this has happened and his only hope is to jump into a waterhole at once, with the bone in his

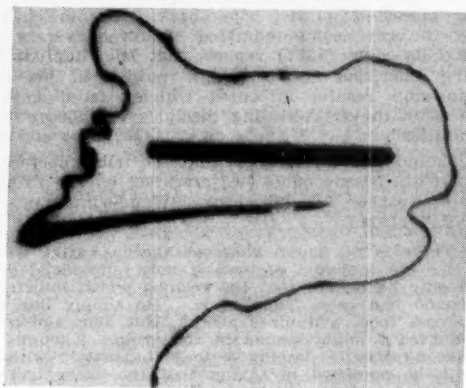


FIGURE II.

Pointing bone (hair string attached) and pointing stick.

hand. In pointing the bone the performer adopts the correct ritual attitude, chants the prescribed song, which interpreted runs as follows: "May your heart be rent asunder, may your backbone be split open and your ribs torn asunder, may your head and throat be split open." The bone is then jerked in the direction of the victim. (iv) There is another form of magic in which the medicine-man is involved, and that is what is known as *Kurdaitcha*. This term refers primarily to the shoes that are worn (or supposedly worn) for the occasion (Baldwin Spencer, 1928). They are made of emu feathers and marsupial fur string—an expert's job. One of the party is a medicine-man and he has special markings on him to distinguish him from the others, so that in case of trouble he gets off scot free. The slayer, carrying at the same time a *tjurunga*, which renders him invisible, sneaks up to his victim and impales him with an invisible spear, which leaves no mark, as the medicine-man by means of a magical stone causes the wound to heal and at the same time inserts a spirit snake to give the victim temporary life. The man so assaulted should die in two or three days; if he does not, then the *Kurdaitcha* party makes sure of the job by killing him outright during the night-time. Then the medicine-man of the opposing side has to decide both that the death was the work of a *Kurdaitcha*, whose tracks would be visible round the camp, and who this *Kurdaitcha* actually was. And so the ghastly work goes on.

The other orthodox type of medicine-man was an established and necessary institution in their tribal life. He was not an impostor or a humbug. He practised his profession in the way in which both he and his fellow tribesmen had inherited it, and he believed in it and found it effective. If a doctor's efforts failed, it meant that he had been summoned too late, that the patient had broken an important taboo, or that the spirits of the dead would not be deprived of the company of the dead man's spirit. All this finds an echo in our own experience—and, as with us, charlatans and impostors did arise from time to time.

The special ability of these orthodox practitioners lay in curing and not in causing disease, in discovering whose magic had caused the death of an individual (that is, in conducting inquests), and in holding séances.

Medical Art.

For minor ailments the services of the tribal doctors were not called for, but the natives themselves applied their own remedies. These included human blood, which was collected in a coolamon, then dabbed all over the body

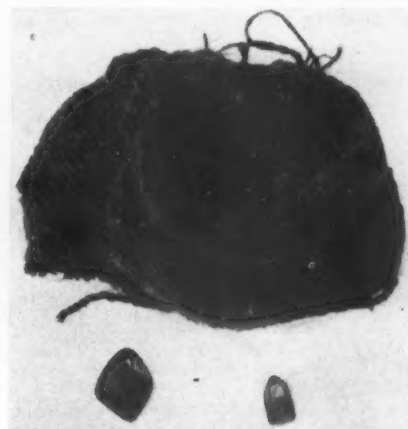


FIGURE III.

Doctor's kit bag. Human hair string fills it. Two stones extracted from patients are in front.

from head to heels, the gin rubbing it in with the flat of her hands for about fifteen minutes. Axillary sweat was also believed to have wonderful curative properties. Incisions over an inflamed and painful knee or shoulder were made with a stone scalpel. Poultices of box-tree bark were applied to cure a bad headache. Amulets were worn to relieve obscure pain, troublesome coughs *et cetera*, and may be compared with our camphor-bag worn round the neck, or a hare's foot in the pocket. Mrs. Duncan-Kemp states that an extract of wild strawberry vine was used for dysentery, and the red sap of a wild pear-tree for stomach disorders.

In 1883 two papers were written. The first was by E. Vance Palmer (Palmer, 1884) and concerned the natives of North Queensland and their use of various kinds of vegetable substances in the treatment of their sick. The following are some of the points related and the species used. (i) *Eucalyptus pruinosa* (Cloncurry), the silver-leaved box. The inside bark was stripped, wound round the chest and body very tightly and damped with water, and the patient made to sit in water. This was used for pains, rheumatism *et cetera*. (ii) *Eucalyptus tetrodonta* (Mitchell), messmate. The leaves were bruised and rubbed in water till this was thick and green. This decoction was drunk for fevers and headache. (iii) *Excaccaria parvifolia*, gutta-percha tree. The bark was mashed in water and applied externally for pains and any illness. (iv) *Melaleuca leucadendron*, tea-tree. The young

leaves were bruised in water and drunk for headache and colds and general sickness. Cajuput oil is made from this tree.

The Australian aborigines were perforce hunters, not agriculturalists. No native grain worth cultivating existed, and the *nardoo* seed that they ground between stones was hard and totally indigestible to a white man, as were most of their other seed cakes. Impaction of faeces often occurred and must have caused the death of many. Some yams have a purgative effect, and the red astringent gum of certain trees was powdered and mixed with honey and taken several times a day for diarrhoea.

The second paper was by Peter Beveridge (Beveridge, 1884), and concerned the area of the lower Murray, lower Darling *et cetera*. He stated that the natives aged early, old age starting at thirty-five years, and that they used vapour baths for pulmonary affections and rheumatic fever, but would not go to the bother of preparing them often, as this involved a good deal of work. Hot sand baths were used, especially for rheumatic joints. For headache, inflammation of the bowels and sore eyes, cuts were first made with a sharp mussel shell and the parts were then sucked to extract blood.

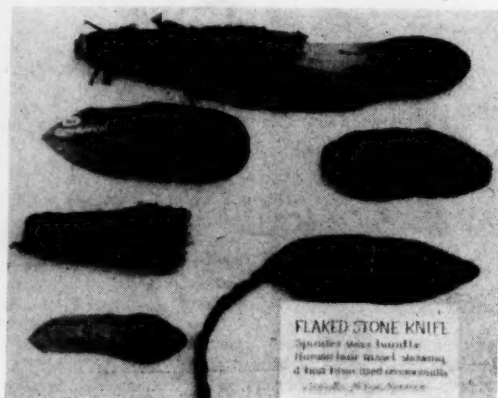


FIGURE IV.

Operating knives for circumcision or making ceremonial body scars. Gum grip. Bark or grass sheath.

The Reverend W. H. Flynn, from the Port Keats area in north-west Australia, tells me that wounds are treated with the juice of a mangrove, which the natives call "cheeky", as it is very irritating, especially if it come into contact with the eye. A fungus that grows in the jungle is also used and highly praised; it is called locally *kandi*. This may be worthy of further investigation, as it may have an action comparable with that of penicillin. For colds natives chew the leaf of one species of *Melaleuca* (we use a proprietary antiseptic prepared from a similar source), and also they chew the inner bark of a tree called *palladji*, apparently a species of eucalypt. For colic and dysentery they chew and swallow antbed (we use kaolin). For sore eyes they use water, and axillary sweat as well. For headache the sister of a male patient rubs his forehead with her foot; the converse holds good if a woman has a headache. But a wife does not and cannot help. W. H. Flynn does not state what happens if a sister or brother does not exist; possibly a tribal brother would have to take the place.

Snake Bite.

Snake bite was treated by immediately pinching the part between finger and thumb to squeeze out the blood. As soon as the blood ceased to flow, a possum skin which had been heated as hot as possible without being spoiled was applied. As soon as it was cool it was removed and the puncture was sucked while the skin was being reheated.

This procedure was repeated for three-quarters of an hour. A death-adder bite was considered hopelessly fatal and no treatment was undertaken.

Professor Stirling (Stirling, 1896) records that the natives of central Australia used to treat snake bite by tying a ligature above the puncture, which they then sucked. The Reverend W. MacKenzie told me that the natives of Cape York, where he is stationed, know nothing of ligatures, but cut the area to make the blood flow and then make the person sit in water.

In north-west Australia singing by the medicine-man is the method chiefly relied upon, but ligatures are also tied above the bite.

Serious Illness.

However, when serious illness had to be dealt with, the tribal doctor was summoned. His method was first to impress the audience by various antics, then to approach the patient. Having been told the seat of trouble, either he massaged it and pressed it until he managed to extract the substance which he said was the cause of the trouble and which, the sick man was told, had been invisibly projected into him by an enemy, or he managed to get it out by sucking the affected part. This is where his sleight-of-hand ability came into play. Such substances were usually pieces of quartz, bone, bark, stone or charcoal. During the cure some mumbled chants or verses were spoken. Basedow (1924) reports that "the implicit faith a native cherishes in the magic powers of his tribal medicine-man results in cures which exceed anything recorded by the faith-healing disciples of more cultured communities".

As instances of the troubles that the tribal doctors had to deal with, let me quote two cases set out by Professor Baldwin Spencer in his book "Wanderings in Wild Australia" (1928).

There is no doubt whatever that a native will die after the infliction of even a most superficial wound if only he believe that the weapon which inflicted the wound had been "sung" over. He simply lies down, refuses food, and pines away. Not long ago a man received a slight wound in the groin. Though there was apparently nothing serious the matter with him, still he persisted in saying that the spear had been charmed and that he must die, which he accordingly did in a few days. . . . It is useless for an ordinary local medicine-man to operate in such cases. Wounds from charmed spears or other weapons are of a different nature from injuries due to the placing of a pointing stick in the body of a victim. In this latter case there is something tangible which the medicine-man can remove, but in the former there is simply an intangible form of Arinquitla. . . . An Arunta native was hit by a boomerang which inflicted a wound by no means dangerous as such, but the difficulty was that the wounded man declared that the weapon, which had come down from another tribe, had been "sung" by a man of this tribe. An Arunta medicine-man was of no use under such circumstances, but fortunately there was an Ipirra man in camp, and he was brought and "sang"—that is, went through the usual pantomime of making passes, sucking and muttering over the wound. As he belonged to the same locality as the man who had originally "sung" the boomerang, it was supposed that he could counteract the influence of Ipirra Arunquitla, which he successfully did.

The second instance was the case of a man who had broken an important food taboo by eating, quite innocently, of a snake that can be eaten only by really old men. . . . The old man who found him out told him that "By and by you will be very ill. You will die". Nothing happened then, but some years later (about 15 as near as we could reckon) this man had a terrible time, which he described very graphically to us. He was feeling very bad indeed at the time, and an old medicine-man said to him, "What have you been eating to make you ill?" Mukalakki remembered what the old man told him long ago, and he answered, "Kuljoanjo" (the snake). Then the old doctor said, "Today you die". He was very ill then, but as the day wore on he became much worse, and at night it took three men to hold him down, one on his head and one on each leg.

The spirit of Kuljoanjo had twisted itself round his body and every now and then came out through his forehead, rattled its teeth and hissed and looked straight into his eyes. It was terrifying. The natives, realizing the gravity of the case, had sent to Oenpelli for a special celebrated medicine-man named Morpun, who happened, providentially, to be reincarnated at that time. He came post-haste, running and walking the whole fourteen miles without once stopping. All day and all night the men and women had sat on Mukalakki, trying to keep him quiet, and it was just as much as they could do. He was all tied up with the spirit of Kuljoanjo, and shook and shivered when the snake shook itself. At length Morpun the great medicine-man arrived. For a time he stood silently, some distance off, watching Mukalakki. First he ordered the women to go a long way off. Mukalakki sat up. Once more the snake came out of his forehead and looked into his eyes, but at that moment Morpun, who had come close up, made a sudden snatch at it and caught its head. No one but himself and Mukalakki could see it. He held it very firmly and carefully unwound it from Mukalakki's body. When he had done this successfully he rolled the snake up in his hands and put it in his dilly bag, and after staying in the camp for one night went back to his own country, taking the spirit of the Kuljoanjo with him. He put it in a waterhole, right away among the ranges, saying to it, 'Lie down in my camp; do not go back'. As soon as ever the snake was removed, Mukalakki felt immensely relieved. He perspired freely, went to sleep and woke up all right in the morning. Since then Kuljoanjo has not troubled him, but he had a great fright, and everyone knows that if it had not been for Morpun's removing the snake he must have died, and Morpun was the only man who could have done this.

This second case will serve to show that, just as among ourselves, no such thing as equality is recognized in any kind of ability. Some individuals are, rightly or wrongly, supposed to be specially skilful, some in curing disease, some in finding out who was responsible for the death of any native. Though there might be some who profited to a large extent by their cunning, Professor Baldwin Spencer stated that no such things as a fee of any kind was paid for the services of a medicine-man; the surgeon was quite content with his enhanced reputation and status amongst his fellow practitioners and tribesmen.

In a lecture given nearly fifty years ago, concerning the natives of the New England district, John MacPherson (1902) confirms in most respects the statements presented elsewhere in this paper. Their new medicine-men were trained by their seniors (one might compare this with the old style of apprenticeship in force in England 200 years ago), and drastic punishment was meted out to any found guilty of malpractice. His informants told him that previous to the white man's coming many diseases now prevailing were unknown.

Sucking, manipulating and blowing were their chief methods of attacking a problem, and an extracted stone or piece of wood gave much satisfaction to the sufferer.

John MacPherson refers to the use by the aborigines of the corkwood tree of eastern Australia, which contains duboisine. Two species of mangrove yielded a milky sap which was used by the natives—one as a lotion for the relief of pain, the other for the treatment of chronic ulcers. The juice of one of our Queensland fig trees was also used to expedite the healing of certain wounds, and a number of other trees are mentioned by him as being used medicinally.

The fat of a carpet snake was used as an emollient for burns, but in Tasmania the mutton bird was the source of this type of remedy. Fractures were bound up in tea-tree bark, an anterior and a posterior pad being employed, tied on with native string.

Bites of venomous creatures were sucked, and in case of snake bite no ligature was applied, but the site of the wound was freely incised before the sucking began.

Spears were poisoned, in some tribes, by inserting the point in a decomposing human corpse for some weeks. Other types of poison were used by other tribes for a similar purpose.

Hygiene.

Of hygiene the natives were, and are, completely ignorant. Their urine and excreta they regard as part of themselves, as the essence of their bodies, so they will not burn faeces because fire kills, and they are afraid of killing the essence. Similarly, nowadays, they will not let the babies' napkins be boiled, nor are they willing to use a closet pan, and will not cover their faces, which they deposit wherever they please, although they usually choose a place out of sight. They are not particular about micturition and take no notice of the women. The women, however, go behind a bush, their natural modesty prevailing. Camp is shifted as soon as the smell and flies become too bad or the food supply scarce. The natives do not wash if they can help it—certainly not for washing's sake. So you will see how utterly impossible it is to change the thoughts and habits of untold centuries in one generation.

Midwifery.

The natives' midwifery arrangements were, and are, primitive in the extreme. A bush bark humpy, put up for the occasion, formed the maternity ward and was built anywhere, as long as it was out of sight of the camp. The labour was conducted with the patient squatting on her heels, and was usually very easy and quick, the mutilation

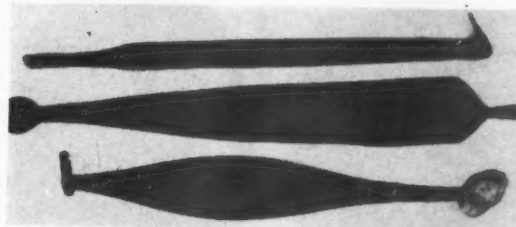


FIGURE V.

Three types of wommera (spear thrower) used by different tribes.

of the vulva which took place at puberty in some tribes making the outlet wide. During the puerperium the patients' female relatives hunted for her and brought her food. At the actual confinement a tribal relative attended her and sat behind her, with her arms around the mother's abdomen, from which position she pressed the uterus down. Labour lasts on an average from four to six hours. For twenty years there were no deaths from childbirth at one mission station.

When the baby is born it is not detached till the placenta has been delivered; but the midwife keeps tugging gently on the cord and at each tug calls the name of individual members of the tribe, and the name that is spoken as the placenta comes away becomes the child's first name, its "cord" name. The cord is then cut with an ordinary mangrove shell and is not tied. No tetanus cases have been noted.

At Port Keats, north-west Australia, the foot of the midwife was called into play in order to expedite the expulsion of the placenta. W. H. Flynn states that very few deaths occurred as the result of childbirth, although hygiene did not exist.

The mother lies up in the lean-to till the baby's cord dries and comes away. In some tribes the resting time during the puerperium is longer; but if the tribe should suddenly have to move, the mother would join the march, irrespective of the interval after birth.

Soft tea-tree bark is used as a diaper and is not sterilized. No cases of septicæmia have been reported. The placenta is allowed to rot and the normal discharges are not burnt, as they, too, are regarded as the essence of the body. Similarly, tea-tree bark is used as a diaper at the ordinary menstrual periods and is not burnt.

If twins are born, the weaker one is killed at once, usually by being choked with sand. If a second baby

arrives within three years it is killed simply to give its predecessor a fair chance at the mother's breasts. Babies are suckled till they are four or five years old. Fish, if available, is the first solid food given to the child. The mother chews it up and feeds it to the baby at about twelve months of age. Mangrove pods also serve as one article of diet for the infant at this time. They are cooked in an earth oven for several hours, steeped in water, mashed and sieved through a fine dilly bag, the astringent properties being thus removed. The resulting thick, greenish "pea-soup" is fed to the baby.

The information concerning the above matters was given to me by the Reverend W. MacKenzie, who has been with the natives in northern Queensland for the past twenty years, and he is also responsible for most of the information concerning the following, which corresponds with our christening ceremony.

The father is not allowed to see his wife till he is invited to see the baby. The midwife decides this time, and it is usually when the cord separates. At this time the women get together and go out hunting, to gather a good supply of food for the feast to follow. Then the husband, and the man whose name was called as the

of the Dream-Time ancestors has left a supply of his life cells, is responsible for the soul of the infant. The ancestral cell enters the body of the mother when she passes close enough to its home. At one waterhole in the Itti territory the aborigines are always careful not to burn too close to the edge, in case they frighten the baby spirits, which might then even invade the menfolk.

When the baby is handed to the father he rubs sweat from under his arms and wipes it over the child. This gives it the right totemic smell, so that the totemic ancestor will recognize it as one of his own children. Sweat is regarded as the essence of strength, because when a man exerts himself he sweats, so when it is rubbed on the baby it will make him strong. The mother and the midwife follow the grandfather round as this is being done. The man responsible for the "cord" name is in the meantime lying flat on his back with his eyes closed. The grandfather then goes to him with the baby and again pretends to make it walk around, and bites its legs and arms and then lays it down on the "name-giver's" chest. This man then puts his arms around the infant, sits up, and then also anoints it with sweat from his axillæ. The child is then given to the mother and the feast begins.

Burial.

The burial customs of these two tribes, the Wik and the Itti, which were separated only by the Archer River, differed entirely from each other. The northern (Itti) tribe laid their dead on a platform of boughs, four to five feet from the ground, with cross-pieces about six inches apart. The body was left uncovered. It was placed there with a good deal of wailing. The body gradually decomposed and when it was dried the bones were all taken and buried in the ground. On the other hand, the Wik tribes used tea-tree bark to roll round the body, which was kept straight, then wound round and round with layer after layer of bark string. While this was being done by the women they sang this chant: "*Ampill ampin yacway archie marchi wahroo.*" This means: "What is that crow saying over there? There is nothing for him here." These words may have been used to contrast with the Itti method of disposal, as no doubt the carnivorous birds took fair toll of the unprotected body on the platform. Among the Wik people the body was well guarded by the very thick covering of bark and string and was carried about by the women for months, the coverings apparently absorbing any body juice that developed. The aborigines show very little repugnance to evil smells at any time; they just accept them. After death the bodies of both men and women were treated alike. Eventually the whole bundle was burnt at the regular burning grounds.



FIGURE VI.

Kurdaitsja shoes made of emu feathers and human blood.

placenta came away, and one of the tribal grandfathers are summoned. The mother and father are then painted over with their own totemic markings (the child always takes the totem of its father). The child is then made ready, by having a piece of bee's wax, in which is stuck a cockatoo feather, placed in its hair (the cockatoo feather is used in order to make the child speak well—sympathetic magic) and string is tied around stomach, wrist and ankle. These form its christening robes.

The grandfather then picks up the baby and walks up and down in front of the father, holding the child as though it was walking, and biting it on knees, ankles and elbows, in order to make it strong in legs and arms. The father is sitting cross-legged, with his wommera (spear-thrower) either over one shoulder or across his arms. The wommera is regarded as the principal instrument by which food is secured, and its being removed from under the baby as the infant is placed in the father's arms signifies that he accepts the child as his own and will undertake to find food for it.

All children belong to the father—the mother cannot call them hers. The Reverend W. MacKenzie told me that among the Wik tribes, and also the Itti tribes, which inhabit the country south and north of the Archer River respectively, the view held regarding conception is that the father and mother are responsible for the body of the infant, but that an old totemic site, be it a waterhole, a rock formation, or a piece of thick scrub, in which one

Dentistry.

As regards dentistry, there was an "old man" whose special province it was to remove teeth, and he allowed his thumb nail to grow long for the purpose. With this nail he cut the gum and pushed the two parts aside. Then he took a piece of hardwood as thick as a pencil and about four inches long, placed one end at the apex of the root and hit the other end with another piece of wood and forced the tooth out. The patient then went away and stayed until his gum had healed, because his friends would try to make him laugh to show his bleeding gum. An upper incisor tooth was always knocked out, so as to allow the spirit to escape at death.

Surgery.

The only operations performed by our aborigines were those of circumcision and its sometimes associated subincision. These were ceremonial rites as well as surgical operations. They were not performed till puberty and were the first step of the youth's entry into full adult responsibilities and privileges—that is, initiation ceremonies. The ceremonial detail does not concern us here. The result of the preliminary dances is that the performers get beyond themselves with excitement (I quote here from Basedow, 1924), lay hands on the lad, and lift him upon the backs of two or three men who are stooping in readiness to receive him. The boy is pulled

back onto this human operating table, full length, and another man immediately jumps onto his chest; others hold him securely by his arm and legs. The boy's mouth is gagged with a ball of hair string. His legs are forced asunder, and pressed downwards. The operator walks between them, and has a knife in his hand—usually a freshly broken splinter of quartzite or other stone—and immediately begins to operate. He seizes the prepuce in his left hand. At this stage, one tribe stunned the boy by clubbing his head, another tribe gave him a dose of "pituri", to stupefy him. The foreskin is then hacked off. The boy, by this time usually semiconscious, is then sat up, and the blood collected in a piece of bark. The wound is dressed with paper bark, clay, emu fat and hot ashes to staunch the bleeding. The new initiate has then to go into the bush till the wound has healed. Some time after this operation, another operation is conducted with just as much hysterical excitement as previously, and in it the urethra is split down for about an inch, or longer.

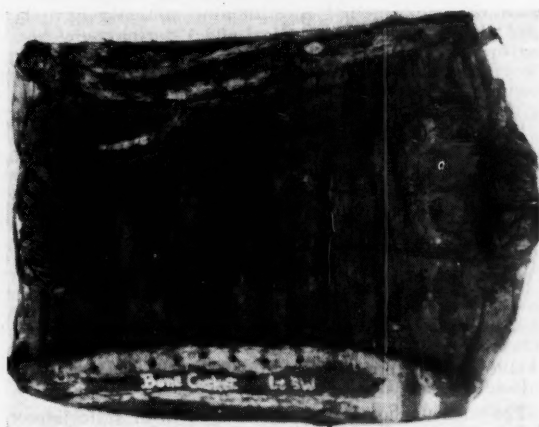


FIGURE VII.

Casket made of tea-tree bark. In it are carried the dried bones of the relative. (This one from the Cairns district.)

The performance of both these rites is by no means universal, and in many tribes who circumcized their youths, the operation of subincision was not performed. This latter rite was known as the "terrible rite" because of the extreme pain entailed, the victim often struggling and yelling while it was being carried out. Its exact import is not known, but authorities are agreed that it was not done with the intent of birth control.

Through the courtesy of Mr. A. Lumsdaine, of the Stanley Dam, an item of medical interest has been sent to me. It was learned from the last of the Yinniburra tribe, a native named Gearedbough, and I have had it corroborated by this same native. He stated that at their initiation ceremony, when the tribal cuts were made (in his case there are four on his shoulders) the "old men" first collected the leaves of the stinging tree (gymple), and after holding them over the fire (presumably to burn off the very fine and irritating hairs that cover the under surface of these leaves), mixed them into a paste with water in one of their vessels, which were made from a knot cut off a gum tree and hollowed out, and spread this paste on the parts where the cuts were to be made. The effect is stated to deaden the part, so that the cuts were not felt.

Wounds.

The aboriginal treatment of wounds seems to us to have been fraught with very grave danger of sepsis; yet we have abundant evidence that they recovered readily from the most severe and extensive wounds without much ado. Their method was to lay at the bottom of the wound

a large eagle-hawk's feather, and in some cases other bird's feathers, and over these, powdered charcoal or ashes from the fire, and then to fill the cavity with wet pipe-clay, a supply of which they carried round with them for use on such occasions. Over this was placed a pad of soft tea-tree bark, kept in place by a binding of possum fur string. It is said that recovery was very rapid, and that scarring was minimal. The dressings were changed as required, but kept on till the wound contents were gradually extruded. The eagle-hawk's feather was carefully preserved for future use, as the procuring of such was fraught with considerable difficulty.

Fractures.

Reports concerning the treatment of fractures are a little conflicting. The Reverend J. R. B. Love (1936) states that among the natives of the Worara tribe in north-west Australia, there was no knowledge at all of setting a fractured limb; but the Reverend W. MacKenzie told me that in the Gulf country among the Wik and the Itti people, fractures were treated by encasing the limb in bark cut from the messmate tree, and that this method was in use before ever the white man appeared on the scene. Another instance of other tribes, other ways: Dinning (1949) reported the results of an examination that he had made of 49 fractured bones found among the aboriginal skeletons in the South Australian Museum—that is, of bones showing evidence of union after having been fractured; his statement is that anatomical restoration in them would be considered good, even judged by modern European standards. Among these tribes there must have been a well-considered method of treatment and of immobilization.

At Port Keats, north-west Australia, the shin bone of a dead man for a leg fracture, or a forearm bone for an arm fracture, was bound on the broken part, and would act somewhat as a splint. There was supposed to be some virtue in the bones of the dead.

Writing in 1878, Brough-Smyth makes the following statement:

It is now difficult to ascertain the nature of the diseases which existed among the native population before the advent of the whites. . . . A native living in the wilds of the bush, uncontaminated by contact with the whites, was probably as healthy as any of the animals that he chased. . . . That he was hardy is unquestionable; . . . A native rapidly recovers from wounds that would prove fatal to men of other races.

Conclusion.

And now, gentlemen, I have taken you back for a survey of the practice of medicine of a prehistoric period—the medicine of a stone age which runs back for unnumbered centuries, probably before early Britain, Rome and Greece, possibly before Egypt, Babylon and Assyria. And what do we find? A human nature identical with our own, subject to its joys and hates, its sorrows and its happiness, but without the saving grace of love for one's fellow which should distinguish our Christian era. Human nature remains basically the same. We search for health and happiness, for a way of escape from death and disaster, and we inquire diligently into the why and how of things—and we are progressing slowly.

In forming any judgement concerning those who occupied this country before ourselves, let us be not only tolerant but generous. Remember that our own modern medicine dates only from the discoveries of Pasteur and Lister in the last century, and that out of these the surgery of today is possible. Remember that surgical anaesthesia became a world-wide procedure just over a hundred years ago—in 1846 to be exact; that the modern antibiotics are the babies of today. Remember that very recently it was a mark of a busy surgeon to wear at operations a coat which had been splashed with pus and blood; that window taxes were once, and that not so long ago, imposed in our England; that witchcraft was punished by death at the stake, and that that took place only one or two centuries ago in England. And are you sure that many of the very remedies that all of us use today,

do not depend for their virtue on the faith, and on the faith only, which our patients place in them and in their doctor? Let us be thankful that today we are gradually being given drugs and methods which are potent in themselves; but let us remember that when we did not have these, we had perforce to adopt methods that were quite on a par with those developed by our aboriginal brother practitioner.

Let me finish with a quotation from another of Rudyard Kipling's poems entitled "Our Fathers of Old":

Wonderful little, when all is said,
Wonderful little our fathers knew.
Half their remedies cured you dead—
Most of their teaching was quite untrue—
"Look at the stars when a patient is ill.
(Dirt has nothing to do with disease.)
Bleed and blister as much as you please,
Blister and bleed him as much as you will."
Whence enormous and manifold
Errors were made by our fathers of old.
Excellent courage our fathers bore—
Excellent heart had our fathers of old.
None too learned, but nobly bold
Into the fight went our fathers of old.
So, down from your heaven or up from your mould,
Send us the hearts of our fathers of old.

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BIOCHEMICAL AIDS IN THE DIAGNOSIS OF DEFICIENCY OF THE VITAMIN B COMPLEX.

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Science, Adelaide.

EARLY symptoms of vitamin B complex deficiency include such non-specific complaints as decreased appetite, irritability, depression and lassitude, and efforts have therefore been made to develop suitable biochemical tests which could help to differentiate the cause of such symptoms. The use of excretion tests for assessing the vitamin B status of an individual is based on the fact that as malnutrition develops, body stores of these vitamins are depleted, smaller amounts are available to the tissues, and urinary excretion

diminishes. Generally speaking, reduced excretion will occur before impairment of function becomes evident. However, the urinary excretion tests are not commonly employed as routine procedures in hospital laboratories and have met with some criticism. Sinclair (1947), for example, has stated: "The determination of a nutrient in a 24-hour specimen of urine from a patient gives little useful information. It mainly reflects his immediate past intake." However, it is considered that the excretion tests can serve a useful function in clinical medicine and that difficulties lie not so much in the tests themselves as in their interpretation. In particular they have proved useful in confirming the dietary cause of certain symptoms or, more particularly, in suggesting the presence of conditioned deficiencies in persons in whom symptoms could not be attributed to the dietetic history alone. A comprehensive review of work on the relationship between chemical measurement and physical findings in malnutrition has been given by Goldsmith (1949).

The following methods of estimation of urinary thiamine, riboflavine and methyl nicotinamide contents have been used at the Institute of Medical and Veterinary Science as routine procedures and have been found very satisfactory. They do not require expensive apparatus, are not time consuming, and can be performed on the same specimen of urine. The technique is not difficult, though it requires a little experience, and could be used in the majority of metropolitan laboratories. The purpose of this paper is not only to make available methods which have been found satisfactory when used as routine procedures, but also to comment on the results which we have obtained and on some of the difficulties which have been met.

METHODS.

Collection of Urine.

A complete twenty-four-hour specimen of urine is collected in a dark bottle (to prevent destruction of riboflavine by light) containing 15 millilitres of 10% hydrochloric acid solution as a preservative.

The patient should not receive aspirin or salicylates for two days prior to or during the collection of the specimens, and is asked to consume either his usual or some standardized diet during the test. Except when estimation of percentage excretion of a small (up to 10 milligrammes) test dose is required, specimens are not collected during or just after vitamin B therapy, since the results are usually of little clinical value.

The twenty-four-hour volume is measured and if necessary acidified, and part is stored in a dark bottle in the refrigerator. Thiamine, riboflavine and methyl nicotinamide are stable in acid solution, and acidified urine has been stored in the refrigerator for periods of over a month without appreciable loss.

Apparatus.

The necessary apparatus consists of one ultraviolet black lamp (Philora 125W. MB/W HE.S5/H44663), one Philora 5455 K/84 choke for 125W MB lamp, and one Philora condenser (Chanex 12 Mf. 240 A.C.). The lamp requires a three-pin bayonet female socket and should be screened on three sides.

Estimation of Thiamine (Wang and Harris, 1939).

The thiamine content is estimated by the thiocrome method of Wang and Harris (1939) as follows:

Test the urine for the presence of salicylates with ferric chloride. Those specimens yielding a strong positive result (purple) are unsuitable for the determination. When only small amounts (red with ferric chloride) are present, these can usually be removed by adding one millilitre of concentrated hydrochloric acid to six millilitres of urine before the preliminary extraction with isobutanol. Concentrated urine or that known to contain excess thiamine should be diluted appropriately before the preliminary extraction.

Shake six millilitres of acidified urine in a centrifuge tube with five millilitres of isobutanol for two minutes and then centrifuge for five to ten minutes.

Measure two millilitres of the extracted urine into each of three 25 millilitre graduated glass-stoppered cylinders and add two millilitres of methyl alcohol to each (to protect the thiamine from excess ferricyanide). Add to the first two one millilitre of 30% sodium hydroxide solution and mix. To the first cylinder add from a microburette a 2% solution of potassium ferricyanide until the yellow produced persists for thirty seconds (that is, after thirty seconds the urine in the first cylinder is slightly more yellow than the control urine in the second cylinder). Avoid excess of potassium ferricyanide. Most normal specimens of urine require half to one millilitre of potassium ferricyanide, but very dilute specimens need only a few drops and concentrated ones (for example, from patients with congestive cardiac failure) may need nearly two millilitres. The first cylinder is no longer needed.

To the third cylinder add exactly the same quantity of potassium ferricyanide that was added to the first one, and then add one millilitre of 30% sodium hydroxide solution. Mix and allow to stand for one minute.

Add to the second and third cylinders five millilitres of isobutanol and shake vigorously for two minutes. Allow the two layers to separate, and remove (and discard) the bottom layer by means of a long pipette. Add two millilitres of water and shake vigorously for one minute; allow to separate and remove the bottom layer. It is important that all the aqueous layer should be removed without loss of isobutanol. Clarify the solution by adding half a millilitre of absolute alcohol to each cylinder. The final volume should be about seven millilitres. Measure five millilitres of each of these into non-fluorescent O.G. test tubes of equal diameter, and to the blank (that is, the second cylinder, the one without the ferricyanide) add standard thiochrome solution from a microburette until the fluorescence under ultra-violet light matches that in the corresponding unknown. During this titration the volume in the two tubes is kept approximately the same by the addition of isobutanol. Continue in this manner until the two tubes match exactly. The test tubes should be held against a black background in such a way that ultra-violet light is reflected from them, and for final matching it is advisable to alternate the position of the two tubes. Cloudiness which occasionally develops during titrations can usually be dissipated by adding a few drops of absolute alcohol.

Solutions.—Details of required solutions are as follows:

1. Standard thiochrome. To one millilitre of standard thiamine add two millilitres of methyl alcohol, one drop of potassium ferricyanide and one millilitre of 30% sodium hydroxide solution. Extract with 10 millilitres of isobutanol and wash this extract with four millilitres of water. Add one millilitre of absolute alcohol to clarify the solution. The volume should be 14 millilitres. Standard thiochrome solution will keep in the refrigerator for more than a week.

2. Redistilled isobutanol. This is collected at from 104° to 108° C. with negligible fluorescence in ultra-violet light. Residues from the estimation can be recovered by distillation after drying over sodium sulphate. The fraction boiling between 80° and 104° C. is collected, redried and again distilled.

3. Absolute alcohol.

4. Potassium ferricyanide: 2% solution.

5. Caustic soda: 30% solution.

6. Standard thiamine solution. Make up a solution of thiamine in hydrochloric acid at pH3, so that one millilitre is equivalent to two microgrammes of thiamine. This will keep in the refrigerator for several months.

Calculation.—Each millilitre of standard solution used is equivalent to the microgrammes of thiamine in 10 millilitres of the urine (diluted if necessary) used in the preliminary extraction.

Results are expressed as microgrammes per twenty-four-hour specimen.

Normal Values.

The normal excretion is considered to be 100 microgrammes or more a day, since excretion of less than this amount is almost invariably associated with symptoms (such as neuritis) which could be attributed to thiamine deficiency. Values of 100 to 150 microgrammes a day are classed as suboptimal, since the majority of people yielding an excretion in this range had increased feeling of well-being when thiamine was given therapeutically. A few apparently normal people receiving reasonably good diets yield excretion figures within this range, but the vast

majority excrete more than 150 microgrammes a day, and the mean value for 75 normal adults was 234 microgrammes a day.

Comment on Method.

Certain substances have been found to interfere with the estimation of thiamine by this method. Salicylates, for example—even five grains of aspirin a day—may completely mask the fluorescence of the thiochrome on which the test depends. It has therefore been found essential to insist that aspirins and salicylates should not be taken just prior to or during the collection of the urine specimens. Quite apart from this, there has been some evidence that salicylates increase the excretion of thiamine and that a sharp fall in urinary content occurs when these drugs are withdrawn (Cleland, 1943).

Secondly, it was found that abnormally high concentrations of methylnicotinamide—such as might occur after the taking of a 50-milligramme tablet of nicotinamide—produced a superimposed yellowish fluorescence, particularly in the blank tube, which made matching of the tubes extremely difficult and could increase the apparent thiamine content, as measured by the thiochrome method, by 50% or even 100% of the true value. A similar effect was noticed when methylnicotinamide was added to pure solutions of thiamine. It was hoped that preparation of a blank by the use of the enzyme thiaminase would overcome this difficulty, but up to the present it has not proved successful. Fortunately with a normal diet there is rarely a sufficiently high concentration of methylnicotinamide to cause serious interference.

If interfering pigments were not present then duplicate determinations were found to agree within 10% and usually within 5%. Two consecutive twenty-four-hour specimens of urine were obtained when possible as a means of checking the accuracy of the collection. In normal individuals the amount of thiamine excreted on consecutive days was usually rather constant, except when large amounts of the vitamin were being excreted.

Estimation of Riboflavin (Morell and Slater, 1946).

All estimations of riboflavin must be carried out in artificial light.

Principle.

Interfering pigments are preferentially oxidized with potassium permanganate, the excess of which is removed with peroxide. Riboflavin is extracted with butanol-pyridine and dried over sodium sulphate. From this extract a blank is prepared by exposing an aliquot part to sunlight until the riboflavin has been destroyed. To this blank a standard riboflavin extract is added until the fluorescence under ultraviolet light matches that present in the unknown.

Method.

Into each of two 25 millilitre graduated cylinders place one millilitre of glacial acetic acid and one to three millilitres of urine (depending upon the expected concentration of riboflavin). If less than one millilitre of urine is required, use one millilitre of diluted urine. To one cylinder add half a millilitre of riboflavin solution containing half a microgramme of riboflavin. To each cylinder add one millilitre of 5% potassium permanganate solution and stand for one minute exactly. Add a few drops of butanol to prevent frothing. Add one millilitre of 3% hydrogen peroxide solution and mix immediately. Add 2.5 grammes of anhydrous sodium sulphate followed by 10 millilitres of butanol-pyridine mixture and put in a stopper (non-fluorescent rubber stoppers are satisfactory). Immerse the cylinder in a water bath at 60° to 70° F. for a few minutes to ensure that sodium sulphate decahydrate will not be formed (if present it occurs as characteristic rather bulky crystals); loosen and disintegrate the lumps of sodium sulphate by vigorous hand-shaking, and then place the cylinder in a mechanical shaker for two minutes. Decant into strong test tubes and centrifuge for four minutes or until the butanol layer is crystal clear. (If decahydrate is present the extract may remain milky.)

Pipette off 10 millilitres of supernatant fluid with a graduated pipette and place five millilitres in each of two O.G. test tubes. Expose one tube to sunlight for ten to twenty minutes (depending on the light intensity) to destroy the riboflavine. Longer periods of exposure (up to two hours) may be required if the day is overcast.

Standard riboflavine extract (one millilitre containing 0.4 microgramme in butanol-pyridine) is added to the tube in which riboflavine has been destroyed until the yellow fluorescence under ultra-violet light matches that in the corresponding unknown solution. During this titration the volume in the two tubes is kept approximately constant by adding butanol-pyridine as the test proceeds.

Recovery of added riboflavine should be roughly 90% to 100%, and failure to obtain this is usually due to inadequate exposure to sunlight.

Calculation.—Details of calculation are as follows:

$$\text{Titration} \times 0.4 \times \frac{6}{5} = \text{microgrammes of riboflavine per}$$

$$\frac{\text{volume of urine used, or approximately}}{\text{twenty-four-hour volume} \times \text{titration figure in millilitres}} =$$

$$\frac{\text{urine volume used} \times 2}{\text{microgrammes of riboflavine excreted in twenty-four hours.}}$$

Normal Range.—Normal excretion should exceed 150 microgrammes a day, but values of 150 to 200 microgrammes are considered suboptimal.

Reagents.

The following reagents are required:

1. Stock riboflavine standard (one millilitre contains 20 microgrammes). Dissolve 20 milligrammes of pure riboflavine dried over concentrated sulphuric acid in one litre of water containing a few drops of acetic acid. Prolonged shaking is necessary for complete solution. The solution can be stored under toluol in a dark glass bottle in a refrigerator for many months.
2. Standard riboflavine extract. In a 50 millilitre cylinder add one millilitre of stock standard riboflavine, one millilitre of water and one millilitre of glacial acetic acid. Add one millilitre of 5% potassium permanganate solution, followed after one minute by one millilitre of 3% peroxide solution. Add 2.5 grammes of sodium sulphate and make the volume up to 50 millilitres with butanol-pyridine. Warm, shake and centrifuge as in preparing the urine extract. Separate the butanol from the aqueous layer completely and make the final volume up to 50 millilitres with butanol-pyridine. One millilitre is equivalent to 0.4 microgramme of riboflavine.
3. Dilute standard riboflavine (used for determining percentage recovery). Dilute one millilitre of stock standard to 20 millilitres with water; 0.5 millilitre of this solution contains 0.5 microgramme of riboflavine.
4. Potassium permanganate. A 5% aqueous solution is prepared on the day of use. This is nearly saturated and considerable shaking is required to dissolve the permanganate.
5. Hydrogen peroxide. A 3% solution is prepared from 10% hydrogen peroxide solution.
6. Butanol-pyridine. To eight volumes of redistilled pyridine are added 92 volumes of redistilled butanol. Residues of butanol-pyridine can be recovered as follows. Treat the extract with 40% sodium hydroxide solution until the aqueous layer is alkaline to phenolphthalein. Remove the aqueous layer and distil the remainder. Discard the mixture boiling below 90° C. Collect all that distils over between 93° C. and 104° C. Most of the water in this mixture separates out of its own accord and can be removed by means of a separating funnel. Allow the remainder to stand over anhydrous sodium sulphate. All that distils above 104° C. is used to prepare the butanol-pyridine mixture. For standardization of the butanol-pyridine mixture, to about 10 millilitres of distilled water add two millilitres of the mixture, and two or three drops of bromophenol blue indicator. Titrate against one-tenth normal hydrochloric acid solution to a pale yellow end point. One millilitre of 8% pyridine solution equals 10 millilitres of one-tenth normal sodium hydroxide solution. Add redistilled pyridine until an 8% solution is obtained.

Comment.

Effect of Light.—On exposure of urine or riboflavine extract to red light, powerful electric light or ultra-violet light as used for titration (Philora ultra-violet black lamp) for fifty minutes, no loss of riboflavine was observed. Some

ultra-violet lamps, however, do destroy riboflavine. When this is the case care must be taken (a) to protect all test material and (b) to expose solutions to the ultra-violet lamp for a constant period. Instructions have been given by Morell and Slater (1946) for the use of a fluorimeter for this estimation. Some loss of riboflavine in the butanol extract could be detected in ten minutes of exposure to daylight in the laboratory (summer midday), and complete destruction occurred within an hour. Riboflavine in urine specimens contained in clear glass bottles was not so readily destroyed. In one case about 25% was destroyed after twenty-four hours and 50% after seventy-two hours of exposure to daylight on the bench in the laboratory. In clear glass bottles in the refrigerator (occasional exposure to light) nearly two weeks elapsed before half the riboflavine was destroyed. When six specimens of urine were stored in dark glass bottles in the refrigerator, no loss was detected even after five weeks.

Effect of pH on Rate of Destruction.—When specimens of urine were made alkaline to phenolphthalein there was considerable loss of riboflavine on standing, even in dark glass bottles in the refrigerator. There was no loss in urine which was strongly acid (pH less than 4.5) or weakly acid (pH 4.5 to 7.0).

Effect of Variations in Preliminary Oxidation.—Small variations in the volume of permanganate and peroxide used and in the time over which permanganate was allowed to remain in contact with the specimens before the addition of peroxide did not affect the concentrations of riboflavine in eight specimens of urine tested. Nevertheless these factors were kept constant in all the tests.

Normal Values.—Microbiological assays of urine specimens are rarely satisfactory, and most of the recorded results of riboflavine excretion have been determined by chemical methods. However, the photochemical destruction of riboflavine for the preparation of the blank (which has been shown by Morell and Slater (1946) to be more specific than chemical methods of destruction) has rarely been used. It was therefore not surprising that the results were obtained with this procedure were lower than most of the recorded values for riboflavine excretion in normal adults. Thus a normal range of excretion lying between 400 and 4000 microgrammes a day has been cited by Cayer (1948) and Harris and Scoular (1949), whereas the average figure we obtained from 42 normal individuals was 340 microgrammes a day and the range 130 to 800 microgrammes. (This, however, corresponds more closely with the range for 37 normal people of 65 to 980 microgrammes and an average figure of 345 microgrammes a day given by Fitzpatrick and Tompsett (1950), who used a microbiological method of assay.) Four of these values only were less than 200 microgrammes a day, and it was therefore considered that normal excretion should exceed 150 microgrammes a day, and that values of less than 200 microgrammes were sufficiently near the borderline to warrant further investigation.

N-Methylnicotinamide Estimation in Urine (Huff and Perlzweig, 1947).

Principle.

Methylnicotinamide in alkaline solution forms a highly fluorescent substance with ketones. Fluorescence is measured in acid solution, since this suppresses much of the non-specific fluorescence which normally occurs in urine.

Method.

Adjust the pH of a few millilitres of urine with hydrochloric acid or sodium hydroxide so that they are neutral to congo red.

Dilute the urine so that one millilitre contains roughly one microgramme of methylnicotinamide. For most specimens of urine the following dilutions are adequate: twenty-four-hour volume less than 800 millilitres, dilute 1:20; twenty-four-hour volume from 800 to 1400 millilitres, dilute 1:10; twenty-four-hour volume 1400 to 2000 millilitres, dilute 1:5.

In each of two O.G. test tubes place one millilitre of diluted urine. To one tube add 0.5 millilitre of acetone. Mix and add 0.2 millilitre of 6 N sodium hydroxide solution to both tubes and allow to stand for five minutes. Add to both 0.3 millilitre of 6 N hydrochloric acid solution and place in a boiling water bath for three minutes. Cool and add four millilitres of 10% potassium dihydrogen phosphate solution. Add standard methylnicotinamide condensation-product to the blank tube (without acetone) until the fluorescence under ultra-violet light matches that in the unknown, keeping the total volume in both tubes approximately equal by the addition of water.

Standard Methylnicotinamide Condensation-Product.—Place 0.1 millilitre of standard methylnicotinamide (50 microgrammes per millilitre) in each of ten test tubes, and add to each one millilitre of water, 0.5 millilitre of acetone and 0.2 millilitre of 6 N sodium hydroxide solution. Stand for five minutes. Add 0.3 millilitre of 6 N hydrochloric acid solution and place in boiling water for three minutes. Mix contents of all tubes and make total volume up to 50 millilitres with 10% potassium dihydrogen phosphate solution. The standard acetone-condensation product (one millilitre equivalent to one microgramme of methylnicotinamide) so formed is stable for several weeks if kept in the refrigerator.

Interpretation.—Normal excretion should exceed five milligrammes a day, and values of five to seven milligrammes are considered suboptimal.

Reagents.—The reagents required are 10% potassium dihydrogen phosphate solution, 6 N caustic soda solution (80 millilitres of 30% sodium hydroxide solution diluted to 100 millilitres) and 6 N hydrochloric acid solution (51 millilitres of concentrated hydrochloric acid diluted to 100 millilitres).

Preparation of N¹-Methylnicotinamide (Huff and Perlzweig, 1943).—Synthetic N¹-methylnicotinamide is prepared from nicotinamide by heating under reflux for one hour at 42° C. with a 50% excess (one millilitre per gramme) of methyl iodide in methyl alcohol. The excess of methyl iodide and alcohol is evaporated. The yellow crystalline mass is recrystallized twice from hot methyl alcohol, and the iodide is changed to the chloride by shaking an aqueous solution with freshly prepared silver chloride. An amount of 10.2 grammes of methylnicotinamide requires 1.36 grammes of chloride, that is, 2.25 grammes of sodium chloride plus 6.6 grammes of silver nitrate. The resulting N¹-methylnicotinamide (after silver chloride has been filtered off) is obtained by evaporation *in vacuo* and recrystallization from methanol. The melting point is rather poorly defined (230° to 240° C.). The chloride content may be determined with silver nitrate, dichlorofluorescein being used as an indicator.

Standard Methylnicotinamide.—Fifty milligrammes of N¹-methylnicotinamide chloride are dissolved in 500 millilitres of distilled water containing 0.5 millilitre of concentrated hydrochloric acid, and the volume is made up to one litre with water. The solution, preserved in the refrigerator in a glass-stoppered amber bottle, is stable for at least one month, and probably indefinitely. Fifty microgrammes of N¹-methylnicotinamide are equivalent to 35.4 microgrammes of nicotinamide, or the amount of methylnicotinamide $\times 0.707$ = the amount of nicotinamide.

Comment on Method.

So far as normal values are concerned these figures are rather higher than those recorded in the literature. For our method it is considered that at least five milligrammes of the methylated derivative should normally be excreted and five to seven milligrammes are considered as being on the border-line. The mean value from 74 normal people was 12.8 milligrammes a day.

Carpenter and Kodicek (1950) have reviewed the factors affecting the fluorescence of the condensation product. They used methyl ethyl ketone in place of acetone, because it is less volatile, and prefer the "no sodium hydroxide" blank in place of the "no acetone" blank, since the possibility of interference by indol or acetone is thus overcome. With the method given above it was found that in the six specimens tried the "no sodium hydroxide" blank did not give as good a blank as the "no acetone" blank in two cases, but was indistinguishable in the remaining four. This point therefore should be examined more fully.

Estimation in Bile.

The same method was used for the estimation of methylnicotinamide in bile except that one millilitre of undiluted bile was used, and in order to get a suitable blank it was found necessary to add 0.5 millilitre of acetone to the acidified blank immediately before boiling for three minutes. With this method recovery of added methylnicotinamide (one microgramme per millilitre of bile) in five specimens of bile was 90% to 110%.

INTERPRETATION AND COMMENT ON RESULTS OBTAINED FROM ROUTINE TESTS ON HOSPITAL PATIENTS.

Before comment is made on these results, it should be made quite clear that they were not obtained from a random sample of the population as a whole, but a large proportion of the cases were selected because latent or manifest deficiencies were suspected. This, however, includes just those conditions in which biochemical aids to diagnosis are likely to be of help to the clinician. In some cases a history of poor diet was obtained, while in others diet alone could not be held completely responsible for the symptoms. Conditioned deficiencies are probably quite widespread in a number of diseases; for example, when Laing *et alii* (1949) examined 50 unselected hospital patients they found that there was no correlation between previous diet and the percentage excretion of a test dose of thiamine.

It has been suggested (Magya, 1950) that reabsorption of thiamine, riboflavin and glucose from the kidney probably in all cases requires phosphorylating mechanisms, and that the presence of any one in excess may so monopolize these mechanisms that there is undue urinary loss of the other factors. This may explain the well-known phenomenon that if a patient with a dietary deficiency of one member of the B complex is treated with that vitamin alone, then symptoms of deficiency of other members of the complex may appear.

A summary of the statistical analysis of the vitamin excretion tests in various diseases is shown in Table I.

Thiamine Excretion.

Seasonal Variation.

It has always been believed that thiamine requirements are proportional to Calorie intake, or more particularly to the non-fat Calorie intake. However, Mills (1946), using rats, has shown that in these animals the daily requirement of thiamine remains more or less constant, so that when the external temperature is high the calorific intake falls and a higher ratio of thiamine to Calories is required.

Analysis of the results obtained from all our patients showed that significantly lower excretion of thiamine was found during the summer months. When values of excretion from a group of patients with peripheral neuritis were analysed, the same seasonal variation was found, and it would be of interest to know whether the incidence of neuritis also shows a seasonal distribution. This variation could be attributed to a fall in thiamine intake without a corresponding reduction in requirements, brought about by the consumption of a diet of lower calorific value but relatively richer in carbohydrate (for example, ice cream, soft drinks or sugar in tea) in the summer. On the other hand the reduced excretion may merely reflect a reduction in urinary volume without a corresponding alteration in thiamine concentration. Schondel (1950), however, was unable to find any correlation between thiamine excretion and season in normal people in Denmark.

Age.

Mills (1948), using rats, has shown that the thiamine requirements (milligrammes per kilogram of food mixture) increase with age, while the requirements of riboflavin and other members of the vitamin B complex remain unaffected. Other workers (Rafsky *et alii*, 1943) have suggested that, in man, increased requirements in elderly people are the result of reduced absorption. It was

TABLE I.
Summary of Statistical Analysis of Results of Vitamin Excretion Tests in Disease.

Vitamin.	Excretion Normal.		Excretion Reduced.			
	Condition.	Mean Value. ¹	P=0.05.		P=0.01 (99% level).	
			Condition.	Mean Value. ¹	Condition.	Mean Value. ¹
Thiamine.	Normal	234	Cancers	165	Hypertension	130
	Rheumatism and arthritis	249	Endocrine dysfunction..	190	Neuritis	122
Methylnicotinamide.			Raised serum phosphatase level in liver disease.. .. .	195	Alcoholism	112
					Cirrhosis and cancer of liver	137
					Congestive cardiac failure	125
					Symptoms or history of dietary deficiency ..	148
					Gastro-intestinal disease	158
	Normal	12.8	Seminomata	9.0	Neuritis	9.1
	Cirrhosis and cancer of liver	13.2			Alcoholism	8.2
	Endocrine dysfunction	11.2			Gastro-intestinal disease	9.0
	Congestive cardiac failure	9.7			Symptoms and history of dietary deficiency ..	7.6
	Rheumatism and arthritis	15.2			Hypertension	8.2
	Raised serum phosphatase level in liver disease.. .. .	12.3				

¹ Thiamine value expressed as microgrammes per day, methylnicotinamide value as milligrammes per day.

noticed that by far the largest number of patients for whom vitamin excretion tests were requested fell within the forty to sixty years age group, and that the percentage of patients showing suboptimal or subnormal excretion tended to rise with increase in age. The difference, however, was not very great, and the average excretion for the three age groups twenty to forty, forty to sixty and over sixty years were 110, 130 and 110 respectively. These results suggest that age of itself is not an important factor in causing a reduction in thiamine excretion.

Hydrochloric Acid Secretion.

Since thiamine is known to be unstable in alkaline solution it is reasonable to suggest that appreciable destruction may occur in achlorhydria. An analysis of thiamine excretion in those people on whom test meal examinations had also been performed showed that there was no significant association between gastric secretion and thiamine excretion. Other workers (Rafsky *et alii*, 1947; Wood *et alii*, 1942) have also failed to show any correlation between the two. However, when achlorhydria or hypochlorhydria is associated with indigestion, and in consequence there is a restriction in the variety of food consumed, the resulting poor diet may be deficient in thiamine. In these cases the use of hydrochloric acid may improve the vitamin status, not by preventing its destruction, but by allowing the consumption of foods rich in the vitamin.

Anæmia.

It has been stated that normal maturation of erythrocytes requires the presence of some members of the vitamin B complex. It would therefore be reasonable to expect that factors causing a reduction in excretion of thiamine might at the same time be associated with anæmia. Of 164 individuals on whom hæmoglobin estimations had been carried out at about the same time as the vitamin excretion tests, 73 had a thiamine excretion of less than 100 microgrammes a day. Of these, 46 had hæmoglobin values of 80% (Sahli) or more, and 24 values lying between 50% and 80%. Expressed in another way the same percentage (70%) of people had subnormal or suboptimal excretions of thiamine in the group with hæmoglobin levels of 80% or over as in the group with hæmoglobin levels of 50% to 79%. Of the 11 people with hæmoglobin levels of less than 50% four had a normal thiamine excretion. These results do not suggest an obvious relationship between reduced thiamine excretion and anæmia, and it seems unlikely that thiamine is a limiting factor in the production of normal

erythrocytes. On the other hand a diet of low iron content is likely to be deficient in thiamine, and one might therefore expect microcytic anæmias to be more commonly associated with reduced thiamine excretion. It was found that 10 out of 14 people with microcytic anæmia had a thiamine excretion of less than 100 microgrammes a day, whereas only four of 11 persons in whom anæmia was not microcytic had reduced excretion.

Peripheral Neuritis, Rheumatism *et Cetera*.

By far the largest single group which was examined was of those who had peripheral neuritis, and the mean thiamine excretion in this group was particularly low.

There seems to be little doubt that peripheral neuritis, particularly in the middle-aged, can usually be explained by chronic thiamine deficiency and will often respond to vitamin therapy. It was of interest to find that in quite a high proportion of those people showing excretion within the normal range, the neuritis was eventually traced to some other cause (arsenic neuritis, disk lesions, toxic polyneuritis *et cetera*), and that the excretion in cases of rheumatism, arthritis and fibrositis showed no significant difference from normal.

Alcoholism.

It has been known for quite a while that many of the symptoms of chronic alcoholism are associated with lack of thiamine. The alcoholics as a whole showed subnormal thiamine excretion, and the group was divided into sections, since it was felt that differences in vitamin status might be connected with the different syndromes. There was, however, no statistical difference between the groups (those with neuritis only, those with alcoholic gastritis or some other gastro-intestinal disturbance, those with cirrhosis of the liver, and those with forms of severe intoxication such as *delirium tremens* and Korsakoff's syndrome) in the excretion of thiamine, methyl nicotinamide or the amino acid methionine. Excretion of all three constituents tended to be lower with Korsakoff's syndrome, and it is possible that with a larger number of cases a significant difference might have been found between this group and the others.

Carcinoma.

Patients with cancer of the breast or testis were also examined, because of the suggestion that vitamin deficiencies might lead to a failure of inactivation of both male and female sex hormones, a theory supported by the development of gynæcomastia, which sometimes accom-

panies deficiency diseases. Cancer patients as a whole did have a somewhat reduced excretion of thiamine (but only at the 5% level of probability), those with seminomata gave the highest values, those with cancer of the breast the lowest. It must be remembered, however, that many people in this group were seriously ill at the time of the test, and it is very likely that the reduced excretion of vitamins reflects the poor diet and reduced food intake associated with anorexia, rather than being inherent in the condition itself.

Diseases of the Liver.

Thiamine excretion in diseases of the liver showed a significant reduction, and the difference from normal was accentuated in that group of patients whose serum phosphatase level was normal (mainly those with cirrhosis or cancer of the liver) as distinct from the group with raised phosphatase values (typical of obstructive jaundice and infectious hepatitis). There was not, however, a corresponding difference between the patients with normal and those with positive results from serum flocculation tests. These results give experimental support to the practice of giving thiamine to people with cirrhosis; there is less justification for giving other vitamins.

Congestive Cardiac Failure and Mercurial Diuretics.

A few years ago a paper was published (Williams and Bissell, 1944) showing that in patients receiving mercurio-phylline therapeutically there was an immediate increase in the thiamine excretion. A similar effect was noticed when normal people were given this drug. This increase in thiamine was not entirely due to the increase in urinary volume and varied from person to person. It is possible that this effect may explain certain discrepancies in results we obtained from people with congestive cardiac failure. The thiamine excretion was significantly lower in this group than in normal individuals, but an examination of the case notes showed that those persons who were being treated with mersalyl had a much higher excretion of thiamine than those not so treated, while the excretion of methylnicotinamide was similar in both groups. The fact that the corresponding methylnicotinamide excretion was not greatly altered by the mersalyl, with the fact that five patients to whom other diuretics were being given did not show a correspondingly high excretion of thiamine, indicates that diuresis alone was not entirely responsible for the higher thiamine excretion of patients receiving mercurial diuretics.

Of 29 patients with congestive cardiac failure known not to have received mercurial diuretics for forty-eight hours before the collection of urine, 17 had a thiamine excretion of less than 100 microgrammes a day, and 10 more had an excretion of 100 to 130 microgrammes. The other two values were 170 and 180 microgrammes. On the other hand, of 12 patients known to have received mersalyl just prior to, or during, the collection of the urine specimen, 10 had an excretion of 200 microgrammes or more, the remaining two values being 100 and 50 microgrammes.

In the following four cases the vitamin B excretion before and twenty-four hours after administration of mersalyl is given (Table II):

In Case I the patient had been receiving vitamin supplements up to a week before the test, so the initial values were higher than usual.

Two questions suggest themselves. First, are the low values for thiamine excretion so often found in congestive cardiac failure due to retention of thiamine in the body or to inadequate intake? The facts that despite very small urine volumes the methylnicotinamide excretion is usually normal and that gross thiamine deficiency often results in beriberi heart suggest the latter. Secondly, is the loss of thiamine following the use of mercury salts likely to be detrimental to the patient by reducing the body stores still further? Mersalyl added to normal urine did not interfere with the estimation as does the free salicyl radicle, but salicylates, too, may cause an increased excretion of thiamine (Cleland, 1943), and possibly the two effects may

be related. How this can be brought about is not yet known, but it seems reasonable to suggest that the drugs interfere with the reabsorption of thiamine by the kidney tubules. If this was an action on phosphorylation in general, one would also expect an increase in riboflavin excretion, but methylnicotinamide, which presumably is not phosphorylated, would be unaffected. In only a few of the cases cited had concurrent urinary riboflavin estimations been carried out, and in these the action of the mersalyl appeared much more variable than with thiamine.

Incidentally, two patients with pulmonary tuberculosis who developed congestive cardiac failure when being treated with para-amino-salicylic acid had reduced excre-

TABLE II.

Case.	Relation to Mersalyl Administration.	Thiamine. (Microgrammes.)	Riboflavin. (Microgrammes.)	Nicotinamide. (Milligrammes.)
I	Before ..	250	—	14.0
	After ..	670	—	16.0
II	Before ..	60	80	2.1
	After ..	120	70	7.0
III	Before ..	130	620	4.6
	After ..	330	800	12.0
IV	Before ..	120	370	12.8
	After ..	230	480	9.0

tion of all three members of the vitamin B complex. Another patient with tuberculosis receiving PAS, who had not developed congestive cardiac failure, had normal excretion of these vitamins.

Gastro-intestinal Disturbances.

People with gastric disturbances, whether due to ulcers or to gastritis, with simple dyspepsia or after hæmatemesis, all had reduced thiamine excretion. This could be attributed either to poor food selection or to failure in absorption or to a combination of both, though it is always possible that the vitamin B deficiency predisposes to dysfunction in the gastro-intestinal tract.

Endocrine Disturbances.

There was no significant difference from the normal in thiamine excretion of people with various types of endocrine disorders, nor was there any difference in the excretion obtained between the individual groups (those with hyperthyroidism, with diabetes or with suspected pituitary dysfunction). This is not surprising, since in most of the patients in the first two groups the disease was being controlled by therapeutic measures at the time that the excretion tests were performed.

Hypertension and Kidney Function Tests.

A significantly lower range than normal was found for the excretion of thiamine in people with hypertension, particularly in those with congestive cardiac failure, but even when these were excluded the range of excretion was still lower than normal. There is a tendency to place the hypertensive patient on a strict diet and to reduce the intake of protein-rich foods, such as meat and eggs, which are valuable sources of thiamine. It seems possible that in this group of patients a reduced intake of thiamine is responsible for lowered excretion. Unfortunately, suitable dietary histories of these patients were not available. However, whatever the cause of the reduced excretion of thiamine, any dietary restriction placed on the hypertensive patient should be designed to supply an ample intake of the vitamin B complex.

The possibility that kidney function may affect the excretion of water-soluble vitamins must always be borne in mind, but in this group of patients there appeared to be no correlation between the two. The patients were divided into two groups, those with normal kidney function

as shown by the urea clearance and concentration tests, and those with reduced function. The average thiamine excretion was identical in both groups. There is therefore no suggestion that poor kidney function will alter the thiamine excretion.

Methylnicotinamide Excretion.

General Considerations.

Unlike riboflavin and thiamine little unchanged nicotinic acid or nicotinamide is excreted, most of it appearing in the urine as methyl derivatives. The average human being is not entirely dependent on a dietary source of nicotinic acid, since some is derived from bacterial synthesis in the intestine. The consumption of extra tryptophane may also increase the excretion of the methylated derivative (Schweigert and Pearson, 1948; Ellinger and Kader, 1949). Excretion of the latter, however, should still reflect the availability of the nicotinic acid, whether it is derived from the diet or synthesized in the gut. Interpretation of the results is rather more complex than with thiamine or riboflavin, because it is conceivable that low values of methylnicotinamide excretion could be due to failure in the methylating mechanism and not to inadequate supplies of this vitamin. With a normal diet it was shown by Ellinger and Hardwick (1947) that the addition of methionine, the usual source of methyl groups in the body, did not increase the urinary excretion of methylnicotinamide. If, however, large doses of the vitamin (100 to 150 milligrammes a day) were given for several weeks, the percentage of the test dose excreted as the methyl derivative fell unless extra methionine was given. There seems every reason to believe that, as with rats, the continued consumption of large doses of nicotinic acid could precipitate a deficiency of methionine. In one case which was followed, the initial excretion of methylnicotinamide was only four milligrammes a day, but rose to 34 milligrammes after the patient received a daily supplement of 150 milligrammes of nicotinamide for three weeks. After another three weeks of the same supplement, the excretion had fallen again to 16 milligrammes, and the amount of methionine present was well below normal. It was therefore thought that the excretion of methylnicotinamide after a test dose of either nicotinic acid or its amide could be used as a means of assessing not only the nicotinic acid status, but also the methylating capacity of the subject.

Methylation and Liver Damage.

It has been suggested that cirrhosis of the liver is often associated with dietary deficiencies, particularly those of the B complex and labile methyl groups, and modern methods of treatment usually include a diet rich in protein and supplemented with B vitamins and methionine. It therefore seemed reasonable to suggest that such a condition would be accompanied by a reduced excretion of methyl nicotinamide, and it was hoped that this might serve as a useful test for liver function in such cases. No significant difference, however, was found between the ability of normal individuals and that of people with known disease of the liver to methylate test doses of either nicotinic acid or its amide. Indeed, several patients in the latter group gave inexplicably high values before the test dose was given—five to 10 times the normal excretion. These people were usually seriously ill at the time, and the question arose whether retention of bile might result in increased urinary excretion of methylnicotinamide or cause false positive results. However, methylnicotinamide could not be detected in more than traces in samples of bile collected by biliary drainage from two other patients, even when test doses of 100 milligrammes of nicotinic acid were given (methylnicotinamide added to the bile was not destroyed during a period of two days at room temperature); so there is no evidence that human bile is a vehicle of excretion for methylnicotinamide, as it is in rats (Ellinger, 1947). A second suggestion (Schweigert, 1947) was that the presence of large quantities of indican, which could have been present in the specimens of urine in question, might cause a positive

reaction for methylnicotinamide. Unfortunately there has been no opportunity of examining this question. If indican does interfere with the test, then it is the only substance that has been found to cause trouble, and in other respects the method of analysis is singularly simple. Quite recently it has been shown (Knox and Grossman, 1947; Holman and de Lange, 1949) that another derivative of nicotinic acid (the methyl pyridone) is excreted in amounts of up to 50% of the test dose, and it is possible that a comparison of the excretion of the unchanged vitamin and its two methyl derivatives may show some difference between cirrhotic individuals and normals.

Excretion in Diseases.

Little has been published on methylnicotinamide excretion except in cases in which there were already lesions typical of pellagra. One paper has reported that there was no abnormality in the excretion during acute or chronic infections (Cayer *et alii*, 1948), and another that it was reduced in sprue (Paulley and Aitken, 1946), but the number of cases in each group was small. It was therefore considered of interest to see whether in our cases abnormal excretion was associated with any particular disease, even though symptoms attributable to deficiency were not present. Values obtained for people with rheumatism and arthritis, endocrine diseases such as diabetes and thyrotoxicosis, liver diseases (including cirrhosis and cancer, or those with an increased serum phosphatase content) or congestive cardiac failure did not differ significantly from the normal.

A significantly lowered range of excretion was found in people with peripheral neuritis, in those with hypertension, in alcoholics, in those with gastric symptoms or symptoms of vitamin B deficiency, and in some with cancer. The mean excretion, however, in all these cases was not very low and ranged from 7.6 to 9.0 milligrammes per day. The lowest values were obtained in the group with a poor dietary history or with symptoms of some deficiency disease (not necessarily nicotinic acid deficiency).

From this it seems clear that the excretion of methylnicotinamide is far less influenced by general ill health than is the excretion of thiamine. Indeed, there is little evidence that conditioned deficiencies of nicotinic acid occur, so that the irrational use of nicotinic acid therapeutically may do more harm than good by precipitating a deficiency of labile methyl groups. It is of interest to find that when dietetic histories were available the lowest values of excretion were obtained from those who did not eat much meat.

Riboflavin.

Little information on riboflavin excretion in disease is available. Oldham *et alii* (1947) have shown that the excretion in normal women will vary with the nitrogen balance. Thus when a strongly negative nitrogen balance was found excretion was high (about 600 microgrammes per day), and when it was strongly positive excretion was low (about 100 microgrammes per day), but for a normal individual who was maintaining her weight the daily excretion usually lay between 200 and 350 microgrammes. In other words, relatively large amounts of riboflavin may be expected to be excreted by any individual who is rapidly losing weight, even though the diet is not particularly good. On the other hand the person who is gaining weight rapidly may have a reduced excretion, even though the diet would normally be considered adequate. These results also suggest that extra riboflavin is likely to be needed in the latter case, just as children require relatively more than adults. The same relationship between nitrogen balance and vitamin excretion probably applies to other members of the vitamin B complex. With a microbiological method of assay, the value for normal riboflavin excretion as given in Oldham's experiments agrees quite well with our own—namely, it was found that with low to moderate riboflavin intakes about 20% of the ingested vitamin was excreted, but with higher intakes (seven milligrammes compared with the recommended allowance of two to three

milligrammes a day) as much as 60% was likely to appear in the urine.

Excretion in Disease.

The method for riboflavin assay has been in use for only a little over a year, and sufficient material for statistical analysis is not yet available. Nevertheless, the results do show certain trends which are worthy of comment.

Approximately one in every four specimens examined showed a lowered excretion of riboflavin (less than 150 microgrammes a day), and about five in every eight of these showed concurrent reduction in thiamine excretion. Reduced excretion of thiamine without a corresponding

which might prevent the normal reabsorption of vitamins in the kidney must all be considered. When this is done, and if the dietary history of the patient does not justify a diagnosis of dietary deficiency, then efforts should be made to disclose some other cause of the low excretion. In our work we have found reduced excretion more particularly in the case of thiamine. Significantly reduced excretion, of course, does not mean that all values lie outside the normal range, but only that a higher proportion than could be accounted for by chance will do so. It would obviously be both expensive and wasteful (since excess of the water-soluble vitamins cannot be stored) if all patients were given vitamin supplements without the prior performance of an excretion test. Quite apart from this, such treatment might easily mask a conditional deficiency

TABLE III.

Disease.	Number of Cases.	Number of Cases with Reduced Excretion.	Average Riboflavin Excretion. (Microgrammes.)
Hypertension	35	14	180
Neuritis	26	12	230
Digestive disease ..	15	2	250
Alcoholism	13	9	150
Congestive cardiac failure	32	17	180
Symptoms or history of deficiencies	13	9	110

reduction in riboflavin was more common than reduced riboflavin excretion without reduced thiamine excretion. The impression gained was that thiamine deficiency occurred far more frequently than riboflavin deficiency, and that the latter was usually accompanied by the former. Low riboflavin excretion was, however, more often encountered than low methylnicotinamide excretion and occurred most frequently in diseases with symptoms or history of deficiency. The distribution of low riboflavin excretion in some diseases is given in the following table (Table III):

In all except those with hypertension the low riboflavin excretion was almost always accompanied by low thiamine excretion, but in that group roughly half of those with reduced riboflavin excretion had normal thiamine excretion. It is therefore thought that in this group in particular further investigations should be carried out to see whether this association is fortuitous.

Reduction in riboflavin excretion appears to be sufficiently common in a number of diseases to warrant the inclusion of this test as a routine procedure.

CONCLUSIONS.

In summary, then, it can safely be said that in our experience the estimation of vitamin B excretion can be helpful. It is true that excretion is influenced by the immediate past dietary intake, but inadequate diet is not always the deciding factor in deficiency diseases. There is tremendous individual variation in bacterial synthesis in the intestine and in the absorption and requirements of the vitamins. The excretion tests should measure the combined effect of these variables and thus reflect the vitamin status of the individual. They are to be preferred to blood analysis, because experience has shown that blood levels are reduced only in conspicuous deficiency; the urine values should detect early and chronic deficiency.

For technical reasons the consumption of salicylates and vitamin supplements should not occur during the collection of urine specimens, and the urine samples should be kept in dark glass bottles containing acid as preservative. It need hardly be added that accurate collection of a true twenty-four hour specimen of urine is also imperative.

In interpretation of the results, the effect of rapid alteration in body weight, the recent administration of mercury salts and perhaps of salicylates, and the excretion of excessive amounts of other substances (such as sugar)

TABLE IV.

Value Required.	Normal Mean.	Suboptimal.	Deficient.
Microgrammes of thiamine	230.0	100-150	Less than 100
Microgrammes of riboflavin	320.0	150-200	Less than 150
Milligrammes of methylnicotinamide	12.8	5-7	Less than 5

so that its cause was not discerned, or, with nicotinic acid, might precipitate some other deficiency. When deficiency has occurred, the initial improvement in well-being when the vitamin supplements are given is often extremely rapid. Relapses, however, are not uncommon when the vitamin supplements are stopped, even though the urinary excretion remains normal or even high. The reason for this is obscure—perhaps a greater "head" of the vitamin is required to initiate certain reactions or to bring about adequate formation of the active coenzyme, or perhaps the rate of phosphorylation (with thiamine normally almost complete in ten minutes—William and Bissel, 1944) is reduced, an excessive urinary loss being thus allowed (compare glucose excretion in diabetes). In such cases the patients will often respond to injections of the vitamin, presumably because oral absorption will not maintain this "head" or concentration in the tissue.

It is true that at present far too little is known about some of the factors which affect the excretion of the water-soluble vitamins. Until more information on the excretion under various conditions is available it is unlikely that the problems will be completely elucidated. Nevertheless, with further experience in their use the value of these excretion tests will become increasingly important, and it is hoped that this paper will stimulate interest in the subject and bring about a more careful selection of suitable material for analysis.

SUMMARY.

1. Instructions for simple methods of estimating the thiamine, riboflavin and methylnicotinamide content of urine are given.

2. Normal values for daily excretion according to these methods are considered to be as follows (Table IV):

3. Statistical analysis has shown that (a) people with hypertension, peripheral neuritis, alcoholism, cirrhosis or cancer of the liver, congestive cardiac failure, symptoms of deficiency diseases or history of malnutrition, or gastrointestinal disturbances, are likely to have a low thiamine excretion; (b) people with hypertension, peripheral neuritis, alcoholism, gastro-intestinal disturbances or symptoms of deficiency diseases or history of malnutrition are likely to have a low excretion of methylnicotinamide. Values for riboflavin excretion in various diseases have not been examined statistically, but suggest that reduced excretion is not uncommon and is usually accompanied (except in some cases of hypertension) by a low thiamine excretion.

4. Difficulties in the methods of estimation and in the interpretation of the vitamin excretion tests are discussed.

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THE PSYCHOSOMATIC ASPECT OF SKIN DISEASES.¹

By W. KEITH MYERS, M.B., B.S. (Sydney),
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Sydney.

THERE was a time, not so remote, when the study of skin diseases implied the effort of mind of accumulating and tabulating an enormous collection of lofty Latin and Greek names—a veritable dyschezia of nomenclature. Today the dermatologist is one of a team, one of the goodly company of physicians and surgeons whose capability and skill must include some knowledge of recent work in most branches of our art and science and, indeed, a knowledge of the processes of industry and of the ever-changing occupational hazards of modern life.

I think, in this respect, that perhaps we were tending to become too physically and chemically minded. Now, however, the ever-increasing importance of the personality and the nervous system as it affects cutaneous diseases has become evident. It should, however, be unnecessary to utter a warning at this stage against classing as psychosomatic any disorder whose cause is not immediately evident. It is very convenient to be able to label a condition psychosomatic as a cloak for ignorance. On the other hand, it is equally wrong to seek the late advice of the psychiatrist because of failure to relieve the patient's skin disease with judicious local applications, X-ray therapy, treatment of metabolic upsets, general nervous sedation *et cetera*. The psyche and the soma are one entity. The patient must be treated as an individual human being by a careful combination of physical and psychic therapy.

The fact of the common ectodermal origin of skin and nervous system is, I think, overstressed. After all, the respiratory system branched off from the endodermal tube, the kidneys are largely mesodermal; but so are the bones.

Nevertheless, the skin is the largest sensory organ of the body and it is the frontier between our internal and external environment, reflecting changes produced in each.

The relative importance of the psychic and the somatic in skin disease has caused and is still causing the production of numerous controversial papers on the subject. This confusion and speculation are best described by Rogerson, who compares the present position of the study of psychosomatic dermatoses to "an unconsummated marriage between a ghost and its integument". Sulzberger and his co-workers give a warning against over-emphasis of the mental aspect, or rather against too much speculation without controlled experimental evidence. They suggest that unrivalled opportunities exist for careful scientific investigation in such concrete examples as the common wart—a tumour of virus origin—or in *herpes simplex*—a virus infection—in which psychic factors undoubtedly play a big part in either the cure of the former or the mechanism of production of the latter.

Cormia, on the other hand, lays greater emphasis on the mental aspect, his argument being based largely on his work in the armed forces of the United States of America during the last war.

Stokes strikes a much more compromising note. He decries the "sole cause" in medicine and makes the following statement: "The psyche rarely appears in dermatoses as a sole cause, and for that reason has met with

¹Read at a meeting of the Section of Neurology, Psychiatry and Neurosurgery of the New South Wales Branch of the British Medical Association, with the New South Wales Section of the British Association of Dermatology and Syphilology, on September 7, 1950.

more difficulty in acceptance, perhaps, than have fungi, body cells, and so forth." He thus regards the psychic component as one link in a chain. Similar views are expressed by Obermayer. It is obvious that in the time at my disposal I can only briefly discuss the problem. As I see it, we can best divide the psychosomatic dermatoses into two main groups, as follows.

The first group consists of those conditions which are essentially the problem of the psychiatrist, but in which the dermatologist is frequently first consulted, since the skin lesions are the predominant objective phenomena. I refer to the artefacts (*dermatitis artefacta*)—self-inflicted lesions with an hysterical basis—the compulsion neuroses such as trichotillomania (pulling the hair), nail-biting or other dermatoses produced by an obsessional habit, and the phobias such as acarophobia and cancerophobia or syphilophobia. Some of these conditions may occur in an extremely severe form, and it is obvious that the superficial and modest psychotherapeutic efforts of the dermatologist are insufficient.

I think that both specialist groups represented here at this meeting have no contentious problems in this particular group of diseases.

The second group, however, is a different matter entirely. Most of the conditions to be discussed here are the everyday affair of the dermatologist, and, let me say in all humility, are probably not so familiar to the psychiatrist, largely owing to the fact that dermatologists rarely feel the necessity to consult their psychiatric colleagues. We treat the patients with X rays, unguents, lotions and pills, and their condition improves in many cases. But some relapse and the same treatment is tried by either the same physician or another colleague. His ointment may be darker or his X-ray apparatus may make a louder noise, and once again the patient obtains relief—for a time.

It is, in my opinion, the object of this meeting to pool our knowledge and discuss the best management of these patients.

It is impossible in a short paper to attempt to classify this group of disorders; indeed, it is not altogether desirable to do so, as Kelly pointed out in a recent paper read in Brisbane, where he considered that "each and every patient must be considered as a separate and individual problem".

However, for the purposes of this meeting a brief grouped list of the disorders is set out, the psychic factor being concerned either in the initiation or in the aggravation or perpetuation of the disorder.

The diseases are as follows: idiopathic pruritus, general or local; certain vasomotor and other autonomic dysfunctions, such as urticaria, dermatographism, hyperhidrosis, *acne rosacea*, *alopecia areata*; certain general or local parästhesias, such as burning or crawling sensations; neurodermatitis in its many forms—for example, *lichen simplex chronicus* (localized neurodermatitis or lichenification) including the menopausal or post-menopausal type, and infantile eczema and its later sequel, Besnier's prurigo or disseminated neurodermatitis.

In answer to the criticism of infantile eczema as a neurodermatosis, my reply is that the child is the mirror of its parents. We are all familiar with the neurotic stage setting of this condition.

Next comes a miscellaneous group, including the following: dyshidrotic eczema and certain cases of nummular or discoid eczema, and many instances of periaxillary dermatitis—incidentally combined with hyperhidrosis—the khaki dermatitis or "dermatitis ? allergic" of the army. I do not wish to belittle the theory of chrome dye sensitization as a factor in this latter condition, but only to stress the strong nervous factor present in most cases. This leads finally to certain instances of contact sensitization dermatitis in industry. Here Kelly holds that it is fallacious to assume that remission when the patient is away from his work and relapse on his return necessitate putting the entire blame on some noxious substance as a cause of the eruption.

Finally we come to a group of undoubted physical dermatoses capable of influence by emotion or other mental components. This group includes psoriasis, *lichen planus*, herpes and warts.

MacKenna has suggested that certain personality types may be equated with more or less distinct varieties of psychosomatic cutaneous disorders. Thus the hysterical person is subject to self-inflicted lesions or artefacts; the obsessional person to lichenification (*lichen simplex*), simple prurigo, *pruritus ani* and *pruritus vulvæ*; the person with the severe anxiety state to excoriating acne, hyperhidrosis, pompholyx and rosacea; while the narcissistic or morbidly self-centred person may develop a severe exudative dermatosis.

Of course overlap may occur, as MacKenna himself admits. The object of his paper was to attempt to correlate the work of the dermatologist and psychiatrist to the extent that if the psychiatrist could state that the patient was of such and such a type, the dermatologist could answer that if he developed a skin eruption it would be W, X, Y or perhaps Z. The scheme is obviously not perfect but is a great help in the systematic management of the patient—for example, constant and repeated assurance to the "anxiety" type, prevention of over-treatment of the obsessional (essentially a ritualist).

I cannot, of course, in the short time available cover in detail all the above-mentioned conditions. Perhaps a few short examples and some photographs selected at random may serve to illustrate some of the simpler types of case of the second of the two large groups mentioned in this paper, which are the everyday lot of the dermatologist.¹

Points in the Management and Treatment.

From a dermatological point of view a not inconsiderable proportion of the group of dermatoses under discussion yields to routine local applications, X-ray therapy, improvement of the general health, avoidance of aggravating, injurious substances, mild general sedation *et cetera*. But there remain those patients who, superficially identically affected, either fail to respond to these measures or temporarily respond to some change either in treatment or in medical adviser. These are the people who "do the rounds" among the dermatological specialists.

It has been my experience that, when a successful result in these cases has been obtained, it has been automatic rather than the result of exhaustive inquiry or suggestion on my part; naturally I do not claim to be an expert psychotherapist. In other words, the patient's condition has improved by his solving his own mental conflict. Conversely, I may add that because of economic or other circumstances it is not always possible for this to occur, and the patient's eruption continues to cause trouble. The last war provided many an example of otherwise identical dermatoses either clearing up rapidly or failing to respond after many weeks of hospital treatment, eventually healing on the patient's discharge from the services or transfer to home State or city. Other patients settled down for the time being, but relapsed on return to the General Details Depot. Obviously the distaste for further active service after years of such activity, or in a primarily psychoneurotic person, played its part. I am sure that those of my colleagues who work in Repatriation Department clinics see those same patients relapsing once more after some anxiety or maladjustment in civil life.

Sometimes the dermatologist, if he has the time, can, by a few brief questions, find a cause for the persistence of the patient's dermatosis; but in a number of cases this requires expert psychiatric examination. From a practical viewpoint two drawbacks become evident; these are the patient's unwillingness, on the grounds of expense, to consult more than one doctor, and a certain resentfulness at the explanation that his complaint is influenced by the "nerves". (Incidentally, there are a number of patients who revel in this suggestion and like very much to hear it.) The resentful patient fails to see why his complaint should, as it were, be blamed upon himself, and consults another dermatologist. Kelly, in his excellent paper, has

¹Dr. Myers here briefly described several illustrative case histories.

stressed the importance of the dermatologist's being concerned mainly in the more recent and immediate emotional factors in the patient's history and obtaining the personality type in a general way only. Should there be evidence of pronounced personality deviation or a history of prolonged emotional tension, then he considers that the psychiatrist should be consulted.

Hellier expressed similar views about the immediate factor and the wider aspect of the adjustment of the patient's attitude to life and his skin condition. He states that it is our aim to give the patient insight into his condition, reassuring him that it can be controlled if he goes about it the right way and modifying his environment. When this fails and a severe anxiety state or emotional upset is present he believes that there are hidden stresses in the patient's mind which have not been revealed, and that this is the field and scope of the trained psychiatrist.

Conclusion.

In conclusion I wish to state that I believe that the object of these papers and any subsequent discussion is to appeal for a compromise between the rationalism of Virchow and the idealism of Coué, and to make a practical attempt to evolve a combined approach by both dermatologist and psychiatrist.

PSYCHOSOMATIC ASPECTS OF DERMATOLOGY.¹

By J. D. RUSSELL,

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How easy it is to aver that mental ideas or states can be converted into physical disease processes, as they can be converted into phobias or hysterical paralyses, but how difficult it is to prove it or to demonstrate the mechanism!—L. J. Witts (1948).

I HAVE long held the opinion that medical education has become too deeply rooted in a mechanistic approach that views man as a reflex physico-chemical being. Man is thus regarded as a machine, and disease as a defect or derangement in one or more of the component parts. Diagnosis consists in the identification of the part that is faulty, and treatment takes the form of repair of the local fault. This machine medicine product of a machine age results naturally enough in a traditional distrust on the part of most medical practitioners of the philosophic approach to medicine. I do not deny that the structural concept has produced many advances in medical knowledge, but I do believe that it is inadequate. It cannot satisfy the thoughtful doctor nor fulfil the needs of many of his patients.

Of recent years we have seen the introduction of the word "psychosomatic". The primary reaction of the psychiatrist to such a parvenu is to remark starchyly that he has ever realized the indivisible oneness of mind-body. This initial response is soon tempered by the realization that the so-called "psychosomatic concept" has rapidly diffused through the clinical branches of our profession and has to a degree been accepted. Thus there has been a swing away from the mechanistic approach and a desirable tendency to restore the human element to our art. I use the word "restore" advisedly, as the holistic concept of considering the total personality in the total environment is anything but new. Indeed, our forefathers, knowing little of the microscope, less of the test tube, and nought of the mixed blessings of the atom and the cyclotron, attached much importance to such matters as temperament and diathesis.

Your awareness of and interest in these last-mentioned factors in personality in relation to your work are suggested by our discussion tonight following hard on the heels of a similar meeting at Brisbane during the recent Australasian Medical Congress (British Medical Association).

¹Read at a meeting of the Section of Neurology, Psychiatry and Neurosurgery of the New South Wales Branch of the British Medical Association, with the New South Wales Section of the British Association of Dermatology and Syphilology, on September 7, 1950.

tion). I am therefore emboldened to presume that dermatologists are no longer satisfied with their traditional role as skin specialists, and that we are agreed that skin diseases should be classed as derangements of the whole body and not merely of the integument alone. In asking for your acquiescence in the psychosomatic concept as applied to dermatology one is merely requesting your agreement in two basic truths: (i) Any illness is a unitary reaction of the organism as a whole. (ii) The causes of any illness, even the simplest, are multiple or cumulative stresses which finally break down the organism's powers of adaptation or of compensation.

In applying these truths specifically to dermatology, one says that there are skin diseases in which it is not the skin that is diseased alone, but rather the individual as a whole that is ill, the whole being far more than the sum of the component parts. Next there is an interplay of many factors in the production of skin diseases—hereditary predisposition, allergy, bacterial and virus infections, immunity and mental conflicts; all these and many more may play a part varying in importance from case to case and syndrome to syndrome. Thus I want to make it perfectly clear that all that the psychiatrist claims is that there is a psychological aspect of skin disease, which may be of little importance or all-important in the total picture of causation. I would, however, suggest that of the many factors playing a part in the aetiology of skin diseases the aetiological relevance of emotional factors has been neglected in the past, with consequent overweighting of the more concrete aspects of causality. This is understandable, as the proportionate assessment of the relevance of the psychological aspect of illness is no easy task. Yet, if the dermatologist is to obtain satisfaction and serenity in his work, he must be prepared to cease devoting his whole attention to treating effects and when possible treat causes, notably psychological causes.

Of necessity this requires a knowledge of human and social biology in order to appraise and assess the personality of the patient and to realize whether the individual is out of harmony with his environment. Attempts to discover a simple and easy method of equating skin reaction and personality type have been bravely made by Stokes (1935), Rogerson (1937), McKenna (1944) and others. Superficially such a coordination seems plausible. As you well know, the anxious personality is linked to *acne rosacea*, hyperhidrosis and pompholyx *et cetera*, the obsessional to neurodermatitis, prurigo and pruritus, and so on. Type psychology was evolved by the psychiatrist, and though broadly helpful, suffers from the defect that there are few people who can be regarded as fitting closely the labels of anxious personality, hysterical personality *et cetera*. Unfortunately the so-called obsessional person may at times utilize hysterical reactions, the schizoid may evince obsessional features, and the anxious person may forsake his expected role and become elated. Thus attempts to assign a large number of skin diseases to a few variable personality types will not quite do.

As I have said, the idea is broadly useful, but one is inevitably forced back to the necessity to consider each individual as a distinct unit reacting to his environment in his own unique way in terms of his own particular personality structure. This implies a search amongst the differences between individuals in respect of characterization—their personality, age, sex, occupation and such like—and amongst the circumstances physical and social of their external worlds. The search can be formulated in question style: "What kind of a person is this?" "What circumstances in his external world has he encountered that can be held responsible for his condition?"

In such terms I should like to attempt to evaluate two dermatological case histories. Through the courtesy of Dr. J. Witton Flynn I was permitted to review some five patients from the dermatological ward of a Repatriation general hospital. I selected two of these who would best illustrate my theme tonight.

My first patient is aged forty-six years. He enlisted in the Australian Imperial Force in June, 1940. He first developed dermatitis of the face, scalp and ears associated

with an external otitis in April, 1941. After six weeks' treatment at the Prince of Wales Hospital, Randwick, his skin cleared and he served thereafter for seven months in the Middle East. On his return he was sent to Queensland, returning to Sydney in August, 1943. In November, 1943, he had a recurrence of his dermatitis described as "widespread erythematous-scaly eruption involving scalp, face, trunk and extremities", for which he was down-graded. As his skin disorder persisted, he was medically "boarded out" early in 1944. Thereafter he has frequently required treatment, loses time from work, and says that the rash never completely disappears, and at the best he has scaly areas in the groins and behind his knees.

Now to our questions. Firstly, what kind of a person is this? He was born in Wales. He describes his father as strict and his mother as easy-going. The third of four children, he was ever attached to his mother and rebellious towards his father. He considers that he was "bright and lively" at school and frequently played truant. Placed in a solicitor's office by his father, he considered it was dull and decided to take up painting. He had many jobs, "just couldn't settle", and came to Australia, "for adventure" in 1926 at the age of twenty-two years. He has been a painter ever since. The longest time he stayed in one position prior to enlistment was eighteen months. He married in 1931 a nurse eight years older than himself, who was a divorcee with one daughter. He describes his wife as "a healthy solid sort of person, well able to look after herself. She runs things and is a fine organizer. I'm a quiet sort of chap."

Our second question is, what circumstances in his external world has he encountered that can be held responsible for his condition? He enlisted without informing his wife—"she would never have agreed to my joining up". Thus he precipitated much disharmony, and when he told her in 1941 that he expected to be sent to the Middle East she endeavoured by writing letters to various authorities to have him retained in Australia. At this juncture his dermatitis started. It is significant that whilst in the Middle East he remained well: "I was never better or fitter. I had a good time in the army with the boys and never wanted to get out." His skin disorder remained dormant thereafter on his return to Australia and on his being posted to Queensland. Returning to Sydney in August, 1943, he developed a recurrence of his dermatitis in November, 1943, and exacerbations have continued from time to time up to the present moment. This state of affairs has relation to his domestic life, which has worsened since the war. He and his wife occupy separate rooms. He is troubled with impotence. His wife writes forthright letters to the Repatriation Department complaining of his skin condition, their finances and his irritability. His stepdaughter has left home as a result of repeated disagreements and complaints about his "filthy ointments".

I think you will agree that this man's personality, his organization and the circumstances of his environment are relevant factors in the precipitation and perpetuation of his skin disorder. His personality traits are those of a weak, restless, rather feckless, dependant and immature man with little sense of responsibility. He has naturally married an older and dominant woman as a mother substitute. His attitude towards her is a mixture of dependence and repressed aggression. When life situations in the past displeased him he merely walked out of them; he has not the courage to repeat this pattern in his marriage. The matter of secondary gain is worthy of mention; by this I mean advantages that naturally (though unenvisioned) flow from his malady. He receives a war pension; he no longer requires to change his work when it becomes tedious—he has an escape to repatriation sustenance on sick leave, which he utilizes freely; he has succeeded in ridding himself of his stepdaughter, whom he heartily disliked, leaving the household to consist of his wife and their own child. I believe that the psychological exploration of the case teaches us much about the prognosis, enables us to assess the patient's subjective reaction to his malady, and tells a good deal more than mere contemplation of the eruption does. At the same time I realize that the skeletons found in this patient's mental cupboard are not the sole cause of either the original manifestation of his dermatitis or its exacerbations. I merely state that the accumulated evidence is convincing, showing a linkage between psychiatric cause and somatic effect.

The second case concerns a man aged forty-three years. Prior to service in 1940 he met with an industrial accident. He was off his work as a machinist for twelve weeks with an ulcerated area on the lateral surface of his left leg. He denies any dermatitis at that time. He was called up for full-time service in the Commonwealth Military Forces in June, 1942, and served in the Sydney area until early 1943, when he was sent to Cowra as a garrison guard. His service documents note the onset of allergic dermatitis involving the inner surface of his left leg in September, 1943. He said that he had observed the condition in a mild form, waxing and waning, for some months prior to that date. The eruption was described as erythematous-squamous, and on being patch-tested he was found to be chrome-sensitive. He was brought to Sydney and treated at the Repatriation General Hospital, Concord, and the dermatitis became generalized and required his medical "boarding" as permanently medically unfit in November, 1943. At that time the skin disorder was under control, but in early 1944 it again became widespread, requiring twenty-two weeks' in-patient treatment at the Prince of Wales Hospital, Randwick. Thereafter he remained well until recently, when he had a recurrence on his left leg, for which he is being treated at the Repatriation General Hospital, Concord.

Investigation of his psychological history reveals that he is the eldest of five siblings and was always quiet and reserved and attached to his mother, who suffered from "nerves". He never mixed freely and his interests were narrow. Since leaving school he has continued over the years to work with the one firm as a travel goods machinist and is proud of his progress, as he is now foreman. He married in 1930 and has two children. His wife's health has been indifferent since the birth of their first child nineteen years ago. He describes himself as a family man and his interests as being his home, gardening and his work. Asked how his wife would describe him, he replies: "Quiet, with little to say and bottles things up." He and his wife were pained and surprised when he was called up for service. He went into the army resentfully, as his mother and father were not well and his wife was "sick and nervy". He missed his home and his civilian work and disliked guard duties. His father died in late 1942, but this did not upset him unduly. However, the sudden death of his mother in the second half of 1943 was "a big shock and worried me. I was worried, too, about my wife; she wrote and told me that she had to have an operation." It was at this period that he first came under notice with his dermatitis. His domestic worries continued after his army discharge. His wife's operation took place in early 1944. Post-operatively she became depressed and tearful, requiring admission to Broughton Hall Psychiatric Clinic and treatment by electroconvulsive therapy. This distressing time coincided with a flare-up in his skin disorder, requiring twenty-two weeks' treatment at Prince of Wales Hospital, Randwick. Things have gone more smoothly for this man and his family since 1944. His wife is fairly well, he is happy in his job, owns his own home, has no financial worries.

In summing up the case, one finds that the personality revealed is that of a quiet, repressed man, with restricted interests and with much attachment and dependence on mother, wife and family. His attitude to service, even in New South Wales, was inadequate. He was therefore under strain from the commencement of his short period of service. Various family disasters increased his maladjustment and were potent factors in the onset of his skin disorder and in its fluctuations until 1944. I cannot explain the recrudescence of his malady recently on psychological grounds, but I do not consider that this invalidates the importance of psychological factors in the case. As I have already stated, causation is plurifactorial. At one time emotional tensions bring to light predispositions and determine the time of onset of an eruption, maintain it or precipitate relapses; at other times mechanisms of infection, auto-sensitization or superimposed contact or some such are paramount. The site of original onset of his dermatitis is of interest, having relationship to an early trauma. You will recall he suffered an injury to the lateral surface of his left leg prior to service and that his skin disorder commenced on the inner surface of that leg. In industrial traumatic neurosis one often sees this mechanism—an old injury determining the site of an hysterical conversion being a place of lesser resistance or akin to Adler's organ inferiority. Finally, our patient remains resentful and aggrieved, inclined to blame the

army for his dermatitis and for the happenings to his family during 1942-1943 and 1944, and during my interview with him he was critical of the attention in his ward, where crude coal tar ointment had been applied—a substance to which he alleges that he is allergic.

Now in comparing these two case histories one notes more or less latent aggression as a personality feature—in one directed against the wife, in the other against the army. As one reads the literature on studies of personality in all of the psychosomatic diseases one finds that repressed aggression is almost a constant finding.

The next point is that neither patient evinces overt anxiety. This aspect first interested me in 1943 in New Guinea. I was living in close proximity to a dermatological ward and was struck by the same absence of tension amongst the patients. After all, to be in New Guinea at that time could be considered bad enough, but to have in addition severe dermatitis should have produced an anxiety reaction in some of the patients. Yet everyone seemed at ease and almost cheerfully content. I realize that one very obvious explanation can be proffered here. There is, however, another, namely, that psychological stress is often relieved when an overt pathological condition can be displayed. Could we say that discontinuity of the skin can drain away not only serous discharge but emotion as well?

My last point is the need for early recognition when psychological factors are relevant. Unrecognized, the abnormal patterns of response tend to become ingrained, and conditioned fears and secondary gains take a firm hold, thus rendering a psychotherapeutic approach difficult or even hopeless.

Conclusion.

In conclusion, I believe that though you may be sympathetic to the views expressed, you would like more tangible evidence of the mechanisms whereby emotional agitation produces physical changes in the skin. I regret that I cannot push my claims any further. I hope you will agree that psychological factors matter in your work, and if you do, then the onus is clearly on you as dermatologists to attempt to evaluate their relevance in your patients. I would be the first to agree that the psychiatrist, with his awesome jargon and his air of mystery, has tended to deter the average medical practitioner from attempting to understand simple elucidations of personality and environmental stresses. However, the elements of the psychiatric approach can be learnt readily if one has sufficient interest and a real desire to understand, and is prepared to spend time listening to the patient. Under such circumstances it should rarely be necessary to refer your patients to a psychiatrist.

In special fields that overlap at times, when common problems are shared, more cooperation and liaison are indicated. In the subject we are discussing tonight the dermatologist and the psychiatrist have much to share to their mutual benefit. Perhaps we could make a start in our hospital work. I like the idea of the case conference, so beloved of our American colleagues, at which case histories of mutual interest can be discussed and worked out to the greater benefit of the patient and to the richer understanding of dermatologist and psychiatrist alike. The skin surely lends itself to visual control and is therefore an excellent field for basic psychosomatic research and inquiry to test the "how" of interaction of mind-body. Perhaps the united efforts of the dermatologist and psychiatrist may provide the answer to the excerpt from the writings of Professor Witts with which I commenced this paper.

Acknowledgement.

My thanks are due to the Chairman of the Repatriation Commission for permission to use two case histories.

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NOTES ON THE ERYSIPELOID OF ROSENBAACH.

By P. H. SPEIGHT,
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DURING the last seven years I have been in close contact with the industrial side of medicine; as a result of this I have had more than average opportunity of observing the erysiploid of Rosenbach.

I have examined over 1000 cases during this period, and while I offer no detailed tabulated summary of the findings, I present my clinical observations based on purely first-hand experience, with little knowledge of skin conditions and the anatomy of the skin. I offer several suggestions which may explain some of the peculiarities of this condition; they are purely suggestions of my own.

The erysiploid of Rosenbach is a condition that I am certain is much more common than is recognized. It is frequently diagnosed as straight-out cellulitis and treated as such.

The industries notable for this condition are those in which dead animal tissue is handled for long periods in temperatures ranging from below zero to cooking heat. These are industries dealing with meat, fish, rabbit and all subsidiary industries relative thereto. Likewise, those people are affected who handle dead animal tissue in the cooking of foodstuffs, such as cooks, chefs, kitchen-men and kitchen-maids. It is also very common in the felling-mongering and wool-scouring trades. The causal organism is therefore a saprophyte referred to as the streptothrix of Rosenbach.

From my experience this organism is very resistant to the extremes of heat and cold. It can withstand much handling; it can lie dormant in the human skin which it has already infected, and flare up again spontaneously or as a result of even mild trauma upon a previously infected area. It can live in sheep skins and hides indefinitely, the usual portal of entry then being a scratch from a burr in the wool or hide.

It seems redundant to say that in almost all cases the condition occurs on the fingers and hands. The site of entry is generally a small scratch, cut or abrasion which just penetrates the outer layers of the skin sufficiently to allow the saprophyte to come in contact with the lymph and enter the tiny surface lymphatic vessels. Clinical signs and the symptoms of pain and heat take about two to three days to become established. From the course the disease now takes I believe it can be concluded that the saprophyte has a special liking for lymph or lymph tissue, and so we see, firstly, surrounding the cut or abrasion a dull red flush. This then becomes typically patterned, such pattern conforming to the surface lymphatics and giving the advancing condition a fairly clearly demarcated patterned border. It is the colour which I think is pathognomonic of the condition.

At the edge there is an extremely faint pink flush, about one-sixteenth of an inch in thickness, showing in the tissue about to be infected. Immediately behind this is the deep purplish-red margin of the active area of infiltration of the saprophyte. This margin may be raised and shiny. It is here that activity is at its peak.

From this margin (which may be a quarter of an inch in thickness) extending to the original abrasion or cut are varying degrees of darkish-red colour to around the tissue of the original scar, which shows in most instances a wrinkled, dead, greyish appearance. The wrinkling is due to the contraction of the surface layers of the skin following the early swelling and heat. I have never seen suppuration occur unless the wound is deep and causes a separate deep-seated cellulitis. One of the characteristics of the condition is that it will run from one finger to the adjacent finger along the contiguous surfaces. It spreads rapidly, advancing as much as three to four inches in twenty-four hours in a well-ordered pattern.

I have never seen the disease come beyond the creases of the wrist, although the accompanying lymphangitis will extend to the glands at the elbow joint. This may be due to an alteration in structure of the surface skin lymphatics at the wrist creases. The corresponding glands are enlarged. Its rapidity of spread and definite pattern-shaped margin make me believe this is mainly via the surface lymphatics. In the fingers, especially if the worker has a fair degree of movement in the fingers during his work, the joints and tendons may become swollen and give considerable pain. However, like the erysiploid, the accompanying arthritis, peri-arthritis and tendonitis subside quickly, and it has not been my experience for lasting complications, joint or tendon, to result.

I have never known a true case of the erysiploid end fatally, but I have known cases in which it has been accompanied by a deep secondary infection, and such cases have always been due to penetration of the deeper tissues at the time of the original injury, such as deep penetration by a fish bone or rabbit bone into one of the palmar spaces of the hand. There are then present two separate conditions which require two methods of treatment.

The spread of the erysiploid can be compared with that of a bush fire; it advances rapidly and leaves behind a trail of tissue which takes approximately three to four months to return to the pre-erysiploid state. A degree of immunity is formed in this tissue, which is purely local and confined to the area previously affected, lasting, I believe, until the surface lymphatic circulation is again reestablished in about three to four months.

Occasionally healing will take place and several small purplish patches will remain. These I regard as dormant areas, and should they be subjected to even minor blows they have been observed to give rise to fresh outbreaks of the erysiploid months after the original condition. They can also break down spontaneously.

In several recent articles in the *British Medical Journal* it has been pointed out that there may be a seasonal influence with outbreaks of this condition, and while I am unable to discuss this matter in regard to England, I may mention that in the early years I did think there was a seasonal influence, as most of the cases occurred during the early spring. I thought that the nature of the fodder which the beasts ate prior to slaughter might be responsible, as well as the sudden increase in temperature and humidity at that time of the year. However, when I went more closely into this point, it was found that the carcasses had been in the chilling chambers in some instances for six months prior to being handled.

The only increase that I noticed was at a time when there was an increased demand by the local public for prepared meat foods, or when pork was on the market, the condition then occurring mostly in boners and butchers.

Treatment.

It can be seen that we are dealing with a very resistant organism that withstands much handling and the extremes of temperature. It also has a liking for the surface layers of the skin, especially the lymphatic vessels, and, as we know, these surface layers of the skin are waterproof and are very hard to penetrate. A method which I have found useful is to paint the periphery of the advancing margin for about half an inch with either tincture of iodine or "Metaphen". This is repeated several times. Usually

the spread is stopped or slowed down. This is probably due to a reflex spasm of the small lymph vessels and to the drying effect that the application has on the surface cells of the outer layers of the skin—in other words, to the bringing about of conditions which are as distasteful as possible to the saprophyte. The area already infected is generally painful and in areas swollen; an application of a 15% solution of ichthylol and glycerine does help to relieve this local pain and tenseness.

I do not favour the application of heat, dry or wet, as this opens up new lymph vessels and, I am certain, increases the area affected.

On this point may I be allowed to digress? I noticed that those men who were subjected to near-zero temperatures, if they sustained the cuts and abrasions in the early parts of their shift, were most unlikely to develop the erysiploid. I think this is due to avascularization of the surface layers of the skin caused by the coldness and maintained over a long period. Should they sustain the injuries near the end of the shift, or close to "smoko" time, when they go outside and the skin temperature rises, they are then more likely to contract the erysiploid.

With regard to the exhibition of penicillin and the sulphonamides, I cannot say that they are of any benefit in this condition. I have not seen the course shortened to any degree that would warrant the use of these drugs.

The local applications of penicillin and sulphanilamide have all been tried and no material benefit has been noticed. I think the reason for this is that the real area of activity is so small and so pocketed and so busy that it is impossible to penetrate to it.

Duration of the Disease.

The duration of the disease is usually two to three weeks, rarely four, and a longer period is exceptional. A man can have several areas on both hands infected at the same time.

Prognosis.

I have never known a fatal case nor have I seen any lasting complications like those described in the overseas journals, such as deformed fingers, thickened joints or stenosed tendons.

It is not always necessary for a patient to go off work. Frequently patients can be treated as indicated previously and remain on duty. This is usual at the industry which has large numbers of these infections; the worker is familiar with the condition, and the first-aid attendants and sisters can cope with it adequately. It is generally the pain factor and adenitis that determine the degree of incapacity. New hands as a rule are first to go off.

Prevention.

In our endeavour to minimize the incidence of this condition we directed our attention to applying the knowledge we had obtained of the saprophyte to the particular industry. The main thing was to instruct the men who came in contact with the jagged ends of the bones or with fish bones, that it is the slight scratches that do not bleed which are the worst offenders. When possible and practicable gloves are worn, tools are used to keep the fingers away as much as possible from the sharp ends of the bones in the cleaning and boning processes, and a routine is followed of frequently washing the hands in ordinary soap and water, following this with a rinse in methylated spirit. At one industry (the rabbit industry) the incidence of this condition was cut to a minimum when this routine was followed; but we found that a man had to be paid off full time to remind the workers to cease work every one and a half hours, walk across to the bowls on the other side of the room and wash their hands and plunge them into methylated spirit. The time lost in the manœuvre more than compensated for the weeks lost by the erysiploid.

There have been attempts to find a disinfectant which could be used, but these have been unsuccessful, because

most disinfectants give their peculiar odour to the food-stuff, which then becomes unsuitable for human consumption. It was after trying many disinfectants that we finally came back to the routine use of soap and water, running water and methylated spirit. As I have already pointed out, the saprophyte is very resistant to ordinary disinfectants and temperatures *et cetera*. Therefore, I think that the main virtue of the routine we now adopt is, firstly, that it does impress on the men the need to attend to minor scratches and abrasions with methylated spirit as soon as they occur, and, secondly, that the methylated spirit has a toughening effect on the surface layers of the skin and makes it less liable to these minor injuries.

Reports of Cases.

ICTERUS GRAVIS NEONATORUM: REPORT OF A CASE REQUIRING REPLACEMENT TRANSFUSION.

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AND.

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THE following case is considered worth reporting, because we believe it is the first time an exsanguination transfusion has been performed in this State outside Brisbane.

Clinical Record.

Mrs. C., aged twenty-nine years, pregnant for the fifth time, was admitted to hospital in labour on August 28, 1950, and was delivered of an apparently normal male infant some twenty minutes later. The infant showed no evidence of prematurity. Its weight was six pounds ten ounces.

It is our custom to collect cord blood at birth from all babies born of Rh-negative mothers, but as confinement followed so rapidly after her admission to hospital there was no time to consult the patient's previous records and the accoucheur was not aware that the mother was Rh-negative. Subsequent perusal of the records revealed that the mother's blood group was B, Rh-negative. Her blood did not react to the Kline test.

The patient's previous obstetric history is as follows. She has a healthy child, now aged seven years, of a former marriage. (The father of this child resides overseas and his blood group is not known.) In her present marriage she has had two miscarriages early in pregnancy, two years previously and three years previously respectively, and a healthy child, now aged twelve months. Neither of her two living children was jaundiced at birth.

On August 30 the baby became slightly jaundiced, but was otherwise well. There was no evidence of head retraction nor of hepatomegaly.

On August 31 the jaundice had deepened. Examination of the baby's blood (by fontanelle puncture) at this stage revealed that the haemoglobin value was 16 grammes *per centum* and that the erythrocytes numbered 5,800,000 per cubic millimetre. Examination of a blood film revealed macrocytosis and anisocytosis, with a fairly high proportion of large corpuscles exhibiting diffuse basophilia; but no nucleated red cells were seen. The mother's blood at the same time gave a positive reaction to the indirect Coombs test.

Samples of blood from both mother and baby were flown to Brisbane, and Dr. Shaw, of the Red Cross Blood Trans-

fusion Service, reported as follows. The baby's blood was of group B and Rh-positive. In the mother's blood blocking antibodies were present to a titre of 1:156 and complete antibodies to a titre of 1:1.

On September 1 the baby's haemoglobin value had fallen to 11.6 grammes *per centum*, and it was decided to carry out an exchange transfusion. A compatible male donor, of blood group B and Rh-negative, who had never received a blood transfusion, was secured. As the baby was now three days old, the use of the umbilical vein for the exchange transfusion was out of the question. It had been noted that with the technique in which both malleolar veins were used, some difficulty was usually experienced in maintaining a satisfactory outflow of blood, so it was decided to employ an artery from which to bleed the baby. The radial artery at the wrist was considered the most suitable (Weiner's technique).

Accordingly, the patient being under local anaesthesia with "Novocain", the right malleolar vein and right radial artery were exposed and a fine needle was inserted into the former. Flexible rubber tubing connected this needle with a three-millilitre "Pitkin" syringe, by means of which freshly collected citrated group B Rh-negative blood was delivered to the baby at the rate of about eight millilitres per minute. The citrated blood had been allowed to stand for a time and only the sedimented layer of erythrocytes was delivered to the baby.

Attempts to introduce a needle into the radial artery were unsuccessful, so the vessel was incised and the blood was allowed to drip into a basin, the quantity being measured at intervals. It was found that the artery had to be watched carefully and swabbed repeatedly with sodium citrate solution to maintain an adequate flow. Via the malleolar vein, 350 millilitres of blood were administered and 279 millilitres were withdrawn from the radial artery.

The baby's subsequent progress was satisfactory, and on September 7 his haemoglobin value was 15.6 grammes *per centum*. No abnormal erythrocytes were seen in a blood film.

Genotyping of the family was carried out by Dr. Shaw and the results were as follows: father, group A, Rh-positive CDe/CDe; mother, group B, Rh-negative, cde/cde; baby, group B, Rh-positive, CDe/cde.

Since the father is homozygous, the prognosis in future pregnancies appears grave.

Summary.

A case of *icterus gravis neonatorum* is described, together with a technique for exsanguination transfusion wherein the radial artery is employed for the exsanguination. The mother's previous obstetric history and the family's genotypes are mentioned.

Acknowledgements.

We are indebted to Dr. S. Were, of the Commonwealth Health Laboratory, Rockhampton, for many of the laboratory investigations and for his active interest in the case; to Dr. Shaw, of the Red Cross Blood Transfusion Service, Brisbane, for advice and for performing some of the investigations; and to Dr. M. R. Gold, medical superintendent of the Rockhampton Hospital, for permission to publish this case and for practical assistance.

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Reviews.

A YEAR BOOK OF GENERAL SURGERY.

It has been the custom in the Year Book of General Surgery to include a chapter on anaesthesia, but in "The 1950 Year Book of General Surgery", which is again edited by Everts A. Graham,¹ anaesthesia has been given a section to itself under the editorship of Stuart C. Cullen. Following the pattern of other Year Books of the current year, this volume opens with a special article by the editor on surgical progress in the past decade; the importance and considerable extent of that progress are well brought out. The arrangement of the abstracted material, which is culled from journals received by the editors between July, 1949, and June, 1950, is elaborated from that of previous volumes; new chapters are devoted to the lymphatic system and the sympathetic system, and a number of the chapters are subdivided. More literature than ever, from world-wide sources, appears to have been covered. Australian authors represented include K. B. Fraser, C. Gale, E. S. J. King (three contributions), T. F. Rose and T. E. Wilson. Editorial comment in the section on general surgery is infrequent and brief, but to the point.

The growing importance of anaesthesia with its associated techniques is reflected not only in the fact that it has its own section, but in the greatly increased space allotted to it. Chapters are given to regional anaesthesia, muscle relaxants, local anaesthetics, cardiac effects of anaesthesia, anaesthesia for cardiac surgery, ether, barbiturates, nitrous oxide, spinal and epidural analgesia, non-volatile depressant drugs and miscellaneous material. Brief editorial comment is added where appropriate.

This is one of the more generally important members of the Year Book series and should have a wide appeal. Its printing and general production (including binding) are admirable.

THE SULPHONAMIDES.

AFTER some fourteen years of clinical experience with the sulphonamides, and in view of their partial but increasing replacement by the newer antibiotics, the publication of a work of such volume as "The Sulphonamides", by Hawking and Lawrence,² may appear to be something of an anticlimax.³ However, as the authors justly claim, a decade of continuously expanding knowledge of their application, succeeded by a static period of no outstanding developments, has so matured and consolidated therapeutic experience that the whole subject may now be reviewed with the necessary detachment and authority. This they proceed to do with a happy blend of thoroughness and critical restraint and with the authoritative support of a very extensive bibliography covering some twenty-five pages.

An interesting historical review precedes a comprehensive account of the physical and chemical characters of the sulphonamides together with their modes of action and pharmacological properties. Their pharmacological activities are considered on a broad biological basis which embraces separately their effects, first on the invading organism and then on the patient.

Sulphonamide antagonists—specific, non-specific and chemical—are discussed in terms of their competitive interference with the sulphonamides, and problems associated with development, recognition and avoidance of acquired bacterial resistance to these drugs are clearly enunciated.

A number of chapters devoted to the special application of "sulpha" therapy in specific diseases and in pathological conditions affecting individual systems are helpful, but often provocative, in that a lack of agreement among the many observers quoted frequently confuses the issue.

Toxic reactions are fully considered, and, for each of the commoner sulphonamides, are graphically and ingeniously tabulated in terms of their frequency and possible danger to life. On the subject of possible renal obstruction, the

underlying causative factors, diagnostic criteria and modes of prevention are fully dealt with, and plates illustrating various urinary crystals of the sulphonamides and their excretion products are well produced.

The chapter on sensitization repays study, if only as a warning and as a reminder of the need for mental alertness in differentiating between symptoms which, in early stages, may be interpreted as disease complications demanding more intense sulpha therapy, but which may actually be due to a sensitivity demanding complete cessation.

The work is at a disadvantage in that while the penicillins, as alternative or superseding therapeutic agents, receive some attention, the newer antibiotics of the chloramphenicol, aureomycin class were not sufficiently established, at the time of publication, for ample comparative consideration. It is, nevertheless, a most comprehensive embodiment of the results of years of therapeutic experience with the sulphonamides in many expert hands and its reference value in relation to every conceivable aspect of "sulpha" therapy is outstanding. Despite the fact that most of the practical information it presents is already well established in common therapeutic usage, and that the sulphonamides are rapidly becoming therapeutic tortoiseshells in the race with the antibiotic hares, no reference library can afford to be without this standard work.

SIMMONDS'S DISEASE.

FARQUHARSON'S monograph on Simmonds's disease adequately covers all aspects of this interesting and not so rare malady.¹ It is illuminating to read that Simmonds in 1914 described the clinical features of the disease which bears his name, and its essential pathology of atrophy of the anterior lobe of the pituitary gland, and in three of his four cases noted the onset after childbirth. He ascribed the destruction of the adenohypophysis to embolic necrosis in a septic puerperium, but realized that destruction took place by tumour or granuloma. He also stressed the importance of complete destruction of the anterior lobe, and pointed out that the functional capacity of the gland is large and small remnants were sufficient to prevent development of the clinical syndrome. He later related atrophy of the anterior pituitary lobe with insufficiency of thyroid, adrenal and gonadal functions and to microcephalia. The importance of ischaemic necrosis as a cause of atrophy of the adenohypophysis was clarified in 1937 by Sheehan. He has shown that areas of necrosis of varying size are commonly found in women who died after childbirth, after retained placenta and post-partum haemorrhage, and it is possible to relate the extent of the necrotic area with the degree of blood loss, shock *et cetera*. Trauma, tumour, granuloma and acute infections can similarly damage the adenohypophysis.

Clinical features are fully discussed, and the points of distinction from *anorexia nervosa* are emphasized, a matter not so easy in clinical practice. Treatment consists of substitution therapy. ACTH is not mentioned.

This monograph should be read by all who are interested in pituitary dysfunction, and the importance of obstetrical complications in pathogenesis might be more widely realized,

GROUP LIFE.

In his capacity as a prison psychologist Mr. Greco became impressed by cultural and recent social influences as factors in homosexual practices. He was thereby encouraged to investigate group influences in the wider field of psycho-neurotic states and the application of this experience in psychotherapy. In "Group Life" Mr. Greco² states that he is propounding a theory which will prove to be as radical as the Freudian doctrine of motivation. Symptoms are related to purpose, in particular to social utility, and treatment will be effective only through the manipulation of community resources. The therapist of the future will be a social engineer rather than an analytical student of individual psychology. Mr. Greco is critical of the view that a man may be a criminal today "because of habit patterns

¹"The Year Book of General Surgery (July, 1949-June, 1950)", edited by Everts A. Graham, A.B., M.D., with a section on Anaesthesia, edited by Stuart C. Cullen, M.D.; 1950. Chicago: The Year Book Publishers, Incorporated. 73" x 51", pp. 692, with many illustrations. Price: \$5.00.

²"The Sulphonamides", by F. Hawking, M.D., and J. Stewart Lawrence, M.D., M.R.C.P.; 1950. London: H. K. Lewis and Company, Limited. 91" x 63", pp. 404, with 47 illustrations, some of them coloured. Price: 42s.

³"Simmonds' Disease: Extreme Insufficiency of the Adenohypophysis", by R. F. Farquharson, M.B., F.R.C.P.(C.); 1950. Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications, Limited. 81" x 51", pp. 94, with illustrations. Price: 15s.

⁴"Group Life: The Nature and Treatment of its Specific Conflicts", by Marshall C. Greco; 1950. New York: Philosophical Library. 81" x 51", pp. 388. Price: \$4.75.

that took root when he was a youngster", nor does he accept "security psychology", which he regards as too narrow because of its genetic, individualistic orientation. On the contrary, needs must be met by cementing outlets provided by the group setting and treatment consists mainly in mobilizing and making available for the patient these outlets—the theory of the "social context". Freudian views regarding the unconscious are dismissed since the author sees no need for "viewing life in terms of a dynamic insulated unconscious force". Feelings of hate and aggressive impulses are not in Mr. Greco's view born out of infantile experiences, but due to current group situations such as the prisoner's difficulty in adjusting himself both to the officers (representing authority) and to his fellow inmates.

The impression which the book leaves is that it represents much more an autobiography of Mr. Greco's apostasy from what he was taught than a contribution to the subject of group psychology. One wonders if greater attention to McDougall would not have saved him the trouble of finding that other "psychologies" did not meet his needs in practice. The book is dedicated to Bergson, Darwin, Freud, Janet and Weismann, whose permission was of course unobtainable. Medical practitioners who read as far as "Aside from obtaining more clients the method of soliciting subjects by visiting homes has advantages one hardly ever has in an orthodox clinical setting", will be inclined to cast the book aside. And the purist will be irritated by Mr. Greco's varied spelling of counsellor.

UROLOGY.

"*ESSENTIAL UROLOGY*", by Fletcher H. Colby, is based on the urological practice of the Massachusetts General Hospital and is designed for the use of students.¹ It is most profusely illustrated with excellent and well-selected photographs and line drawings, and the style is clear and unequivocal. Although brevity may be desirable in a book of this class, didacticism has been carried to the extreme and it gives the impression of being too sketchy even for the use of students.

The scope of its usefulness has been gravely prejudiced by the manner of dealing with treatment in very brief and rather vague outline "because it is ever changing"; but this omission alone renders the book of little use to the general practitioner. The subject matter, too, appears to be ill-balanced. For example, enuresis and stress incontinence (which are always with us) do not appear in the index, but eight pages are devoted to renal thrombosis and infarction which most practitioners never recognize in a lifetime.

One cannot cavil at the material available in these pages, but the omissions would leave many and important gaps in the knowledge of the most immature physician.

Notes on Books, Current Journals and New Appliances.

A GUIDE TO MEDICAL TERMS AND IDEAS.

In the preface to his book "*A Guide to Medicine*", Ivo Gelkie-Cobb explains that it is neither a text-book nor an encyclopaedia of medicine; "It is a guide to those who wish to know the meaning of medical words, with special articles on the more important subjects included under the term *Medicine*".² It is selective and not inclusive, but quite a wide range is covered. The material is arranged in alphabetical order in the usual manner of an encyclopaedia, with special articles by distinguished contributors interspersed in the appropriate places (Australia is represented among the contributors by Professor Bruce Mayes). The subjects treated include many of the more common of those found in an ordinary medical dictionary, aspects of medical history and matters of general medical interest; they range from Hippocrates to hypnotism, from pre-natal care to protoplasm, from varicose veins to vivisection. The more

¹ "*A Guide to Medicine*", by Ivo Gelkie-Cobb, M.D., with special articles by various contributors; 1950. London, Sydney, Toronto and Bombay George G. Harrap and Company, Limited. 9" x 6", pp. 420. Price: 23s. 6d.

² "*Essential Urology*", by Fletcher H. Colby, M.D.; 1950. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" x 6", pp. 590, with 342 illustrations. Price: 86s.

technical medical subjects are explained for the intelligent non-medical reader, but medical readers will find much of interest particularly in historical and general topics. The presentation of medical facts to non-medical readers appears to have been done with discrimination; details of treatment, operative technique and the like have been deliberately omitted. There seems quite reasonable justification to agree with the publishers' claim that this is "an original authoritative work".

BIG GAME FISHING.

MANY persons would divide men into two groups comprising those who go fishing and those who do not. Those who do will read with pleasure and profit a book by Dr. A. B. K. Watkins on big game fishing;¹ those who do not will, if they have any imagination, wonder why they do not and wish that they did. Of the author's love for his sport there is no doubt, and the best part of the book comes after the chapter which is at times a little disjointed, as though someone had had to curtail its length. Big game fishermen will, we should imagine, find more than interest in the technical part of the story. To non-fishermen the whole will be attractive; they will marvel at the wealth of sea and bird life that is encountered by such men as Dr. Watkins. Even the stories of the fish which got away are well told and convincing. This is the kind of book which is likely to bring new recruits to the sport.

ADVANCES IN INTERNAL MEDICINE.

NINE subjects are dealt with in Volume IV of "*Advances in Internal Medicine*".² These subjects and those who write on them are nitrogen mustards in the treatment of neoplastic disease (D. A. Karnofsky), the use of radioactive isotopes in medicine (L. R. Wasserman and R. Loevinger), brucellosis (A. I. Braude and W. W. Spink), advances in the neuro-muscular disorders (D. McEachern and R. Rabinovitch), the use of sodium depletion in therapy (W. Dock), the clinical use of anticoagulants (J. E. Estes and E. V. Allen), hepatitis and cirrhosis of the liver (A. J. Patek), hepatic tests (H. Popper and F. Schaffner) and the vascular physiology of hypertension (G. W. Pickering). Each subject with the related literature is reviewed critically and at length. Physicians and others interested in the subjects dealt with should find this volume an admirable means of bringing their knowledge up to date. Each article is fully documented, and the volume has a subject index and an author index.

THE HOUSEFLY AND ITS CONTROL.

THE ROSS INSTITUTE OF TROPICAL HYGIENE, which is incorporated in the London School of Hygiene and Tropical Medicine, has as its primary object the prevention of disease in the tropics. To keep tropical industry informed of the progress of medical knowledge and of practical methods for its application, a series of bulletins is issued, written primarily for the layman. Number 5 of these bulletins, issued in November, 1950, is entitled "*The Housefly and its Control*".³ It contains full details of the control of breeding and of the destruction of the active adult fly, including the use of the newer insecticides. Although prepared primarily for those in the tropics, this booklet would be very useful to country practitioners seeking suitable information to be put into the hands of lay people. Copies are available on application to L. G. Ponsford, Organizing Secretary, The Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine, Keppel Street (Gower Street), London, W.C.1.

¹ "*Big Game Fishing*", by A. B. K. Watkins; 1950. London: Geoffrey Bles, Limited. 8½" x 5½", pp. 230, with many illustrations. Price: 16s.

² "*Advances in Internal Medicine*", edited by William Dock, M.D., and I. Snapper, M.D.; Volume IV; 1950. Chicago: The Year Book Publishers, Incorporated. 9" x 6", pp. 580, with some illustrations. Price: \$10.00.

³ "*The Housefly and its Control*", The Ross Institute Industrial Advisory Committee Bulletin Number 5, November, 1950. London: The London School of Hygiene and Tropical Medicine (University of London) incorporating The Ross Institute. 8" x 5½", pp. 21, with illustrations.

The Medical Journal of Australia

SATURDAY, MARCH 31, 1951.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: surname of author, initials of author, year, full title of article, name of journal without abbreviation, volume, number of first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

"UNFINISHED BUSINESS."

ONE of the introductory volumes of the "History of the Second World War: United Kingdom Civil Series" is entitled "Problems of Social Policy". It is written by Richard M. Titmuss. The last chapter of the book is called "Unfinished Business", and it deals with social services and war-time deaths. The chapter was probably given its title with provocative intent. This seems likely because what remains to be finished is described only by implication (by a statement of what happened and why) and because no mention is made of how the finishing business should be tackled. It will be worth our while to look at the question and to ask ourselves, here in Australia, whether we are doing all that we might do to get on with the business, for we know full well that in social service and national health it never will, or can, be finished.

The medical profession in Australia, throughout the course of the Second World War, took an interest in the health of the people of Great Britain—indeed it was essential to the successful conduct of the war that it should. Year by year the reports of the Ministry of Health were reviewed in these columns. Readers will remember that the British people stood up in amazing fashion to the rigours of war, and that, particularly in the latter years, the reports became increasingly favourable. During 1940 and again in 1941 a deterioration occurred in certain health indices, but a sudden reversal took place in 1942 and improvement since then has continued. British people are so fashioned that Dunkirk, "and all that the name evokes, was an important event in the war-time history of the social services". We are told that it called forth a note of self-criticism and of national introspection, and that it set in motion ideas and talk of principles and plans. Titmuss states that the long dispiriting years of hard work that followed the bombing on the home front "served only to reinforce the war-warmed impulse of people for a more generous society". Let us name some of the things that were done. Attempts were made to house the homeless, care was given in other areas to people evacuated from the crowded

areas of their own homes, hospital provision was made for the victims of war damage. A great deal could be written about these from the medical point of view and Titmuss has a chapter on each. Other steps taken to build up health included the provision of milk for children and nursing mothers, the vitamin welfare schemes to supply vitamins to young children, and an increased pension rate to the aged. Titmuss points out that the spirit in which many of these services were ordered and administered from about 1941 onwards underwent a subtle but noticeable change. "To an increasing degree human needs were considered and dealt with in a humane way." Evacuation, which has been described as the most important subject in the social history of the war because it revealed to the whole people the black spots in social life, was, Titmuss insists, "the first big entry in the balance sheet which war, beginning its great audit, made inevitable". The war did not abolish poverty, but Titmuss has a good deal to say about the effect of regular employment for all who were capable of work. This meant regular weekly sums of money for food, clothes, rent and other necessities, not for a limited span of months, but for a period of years, and represented, alongside a stable price level, the first defence against a fall in health standards. There were five powerful influences which weighed the scales of national health in favour of less serious disease and fewer deaths. They were: full employment, food subsidies, "fair shares", price control and the welfare food schemes. Titmuss finds it difficult to believe that "certain notable health records" classed among "the medical triumphs of the war" were attributable to more and better medical care. It is not quite clear what he means by this. He admits that sulphonamide drugs, penicillin, blood transfusions and other scientific advances offset to some extent the subtraction of medical manpower and hospital resources from the civilian sector, but thinks that their achievements in saving life cannot explain, for instance, more than a small part of the fall in infant and child mortality. We must presume that he is not thinking of preventive medicine as a whole. He mentions forces, other than the five he names, which were "less in the gift of contemporary Government". Among these is the absence of epidemics. At least some credit for this must be given to the practice of preventive medicine. Again, despite the bombing of water mains and sewers, not a single case of typhoid fever attributable to the water supply was recorded in London throughout the war, and no outbreaks of water-borne disease occurred anywhere in the country as a result of enemy action.

An interesting and important point is raised by Titmuss, one that would probably not occur to all students of the subject. It is that, in order to understand the mortality and morbidity rates of the war period, it is necessary to take into consideration the quality of the diet and the general circumstances of life, not only at the time the child was born, but when the mother herself was born and grew up. It is practically certain that mothers who were bearing children in the 1940's were on the average better physical stock than were the mothers of the 1920's and the 1930's. There has been a gradual improvement in the conditions of life for the mass of the people since the turn of the twentieth century. Titmuss thinks that the decline of the birth rate among families of industrial

workers may have been a favourable factor. It is, of course, clear that the importance of any one of the many interrelated factors or groups of factors cannot be determined. The studies that are undertaken from time to time by the Ministry of Health in Great Britain and by other bodies in England and other places can all throw additional light on the subject and all we can say is that every fresh addition should do something to make the subject clearer. The chief finding of Titmuss, to explain the variations that have been mentioned, is that full employment and an adequate diet are of supreme importance.

The "business" of chief concern to medical practitioners which we in Australia have to set about "finishing" is, as in Britain, that of social service and health. Though the general and social upheaval was in most respects more profound there than here, the problems confronting the two countries are of much the same order. This is our jubilee year and we both think of the past and hope for the future. While there is much in the past of which we can be proud, none among us will be so foolish as to say that we have always been wise. In many ways we are a healthier people than we were, but we may ask whether, *inter alia*, we have not expected too much of our nervous systems. In other words, have we had a right sense of values? The reply to this question will depend on the person who makes it. From this we may ask whether our national sense of values is right. Are we true citizens of a democracy, prepared to work together for the greater good of the greater number? As a nation we have done one or two sensible things lately. The Government is paying increased attention to the care of the tuberculous; special provision is being made for a pensioner medical service; and a scheme of milk supply to school children is about to be started. These are all to the good. What we need is a feeling of national goodwill about all measures undertaken for the welfare of the people. Titmuss quotes portion of a leader from *The Times* of July 1, 1940; it may be reproduced here with advantage:

If we speak of democracy, we do not mean a democracy which maintains the right to vote but forgets the right to work and the right to live. If we speak of freedom, we do not mean a rugged individualism which excludes social organisation and economic planning. If we speak of equality, we do not mean a political equality nullified by social and economic privilege. If we speak of economic reconstruction, we think less of maximum production (though this too will be required) than of equitable distribution.

In a leading article in this journal on August 25, 1945, entitled "Peace", a plea was made for the setting of our national house in order, and for the establishment in our so-called democracy of justice, of fair dealing and of mutual trust. One of the first essentials was stated to be a willingness to work, to do to the best of one's ability the appointed or chosen job. This is as true now as it was in 1945—we still have to get on with the "business". Over these things discussions, even fierce arguments, will certainly take place. This will not matter if views are honest and those who put them forward are at least credited with honesty of purpose. A man who dubs as "red" or "fascist" someone whose views are the opposite of his own, merely because he does not like those views, is proclaiming to high heaven his own lack of sincerity and his own intellectual dishonesty. The average medical practitioner lives a busy, and in some respects an isolated,

life; his share of effort in this "unfinished business" is to do his job, with his patient's interest always to the fore, even if by so doing he has to face overwork. When some piece of medico-social legislation comes into being which he can conscientiously support, he will do what is required of him, and he will do it "not grudgingly or of necessity" but with cheerfulness.

Current Comment.

ANTICOAGULANTS AND CORONARY OCCLUSION.

For the past five years reports have been appearing of the treatment with anticoagulants of patients suffering from coronary occlusion, and the subject has caused some controversy. In 1946 the American Heart Association set up a Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Occlusion with Myocardial Infarction under the chairmanship of Irving S. Wright; it was composed of teams in 16 leading hospitals in the United States, each team being headed by a leading cardiologist and including statisticians, biochemists and various consultants. A progress report of the committee, presented by Wright, C. D. Marple and D. F. Beck, appeared in two journals in 1948.¹ It was based on the first 800 cases of the series and contained the following conclusions. Firstly, among patients treated with anticoagulant therapy in addition to the conventional forms of therapy the death rate and incidence of thrombo-embolic complications during the first six-week period following an attack were much lower than those among patients treated solely by conventional methods. Secondly, it was considered that anticoagulant therapy should be used in all cases of coronary thrombosis with myocardial infarction unless a definite contraindication existed. Thirdly, in the absence of other haemorrhagic states, the hazards of haemorrhage due to anticoagulants were not thought sufficient to contraindicate their use in the treatment of coronary occlusion provided there were facilities for adequate laboratory and clinical control.

Others have supported these conclusions from their experience, but considerable misgiving has persisted in the minds of many clinicians; some feel that the potential danger of these drugs has not always been emphasized enough, and it is generally appreciated that the assessment of the value of any form of treatment of coronary occlusion is difficult.² Of particular interest is the question whether beneficial effects obtained are due to action on the primary coronary disease process or to a reduction in thrombo-embolic complications; the latter appears to be the more important, at least. N. C. Gilbert, G. K. Fenn and L. A. Nalefski³ maintain that dicoumarol and heparin are coronary vasodilators, and that the favourable results reported from their use are due more to the vasodilator than to the anticoagulant effect. Roy W. Scott, in a discussion that followed presentation of the paper of Gilbert, Fenn and Nalefski, attacked this view vigorously, and though, as Scott stated, the hypothesis merits further study, it is not yet convincingly demonstrated. Scott did, however, support the warning of Gilbert and his colleagues about the danger of these drugs even under the most favourable conditions of use, and on this point there appeared to be unanimity in the discussion. Indeed, a general impression gained from most of the reports on this subject is that the utmost care and attention to detail are necessary in both the clinical and the laboratory control of this type of therapy; neglect of this means not only increased danger, but also decreased therapeutic efficacy. This is well brought out in a remarkably candid report by E. Bresnick *et alii*;⁴ it records both disaster and

¹ *American Heart Journal*, December, 1948; *The Journal of the American Medical Association*, December 11, 1948.

² *The Journal of the American Medical Association*, November 26, 1949.

³ *The New England Journal of Medicine*, November 23, 1950.

therapeutic failure due to factors not beyond control and could with advantage be studied by all who attempt this form of treatment. It is to be noted that, despite everything else, Bresnick and his colleagues found evidence, some of it obtained *post mortem*, that well-controlled dicoumarol therapy reduced the incidence of thrombo-embolic complications.

According to a recent communication from Irving S. Wright,¹ the committee set up by the American Heart Association has now studied in detail 1031 cases and submitted the results to careful statistical analysis. Full details are to appear in the final report of the committee, but Wright presents a summary of the findings. Approximately one-half of the patients (the control group) received the best available type of treatment in use before the introduction of anticoagulant therapy; the other half (the treated group) received this and also anticoagulant therapy. Of the control group, 23.4% died; of the treated group, 16.0% died. As many of the treated group did not receive what is now regarded as ideal anticoagulant therapy, it is possible that the results could have been better. The higher death rate in the control group applied in each age group from those of under fifty years to those of seventy years or over; the difference was greater in the later age groups and in those with one or more thrombo-embolic complications. The figures for thrombo-embolic complications indicate an even greater beneficial effect from anticoagulant therapy than is seen in the mortality figures, an important point in view of the serious results, for example, in the brain and in the extremities, that can follow these complications. On the basis of this study Wright considers that anticoagulants should be given to every patient with "acute coronary thrombosis" unless certain contraindications are present. These contraindications are actual or potential prothrombin deficiency (vitamin K deficiency, severe hepatic disease), vitamin C deficiency, renal insufficiency, blood dyscrasias with impairment of the mechanism of haemostasis, interruptions of the continuity of the vascular system (for example, by surgical operation), late pregnancy and subacute bacterial endocarditis. Wright is sensible of the dangers of anticoagulant therapy, but he feels that they have been grossly exaggerated as a result of poorly controlled therapy or the ignoring of contraindications; he makes detailed practical suggestions on the technique of administration based on his own favourable and lengthy experience. Moreover, he makes the point that in the entire series studied by the committee, only three or possibly four patients might be considered to have died as a result of bleeding associated with the use of anticoagulants. On the other hand, it would appear that 46 lives were saved. There is, therefore, he states, a calculated risk in return for which the dividends, in terms of lifesaving and reduced disability, are high.

Just one reservation still has to be made in accepting the findings of Wright and his committee, impressive as they are. N. Doscher and C. A. Poindexter,² from a study of 414 consecutive cases of myocardial infarction not treated with anticoagulants, produce evidence that a number of important variables influence the statistical probability of death from this condition. The variables are age, sex, preexisting hypertension, the presence of angina and previous infarction. Doscher and Poindexter are of the opinion that unless such factors are weighed accordingly in both treated and untreated subjects, evaluation of the therapy is unsatisfactory. They are not critical of anticoagulant therapy *per se*, but only of the methods used to interpret results. The full report of the American Heart Association's committee has not yet appeared, though the earlier reports indicate that the alternate case method of selection was used to determine the treated and control groups. Wright states that the composition of the sample as to age, sex and previous history was remarkably similar in the two groups. It will be interesting, and indeed important, to know how the final figures when they become available stand up to the exacting criteria laid down by Doscher and Poindexter.

MUNCHAUSEN'S SYNDROME.

It rarely occurs that we are grateful to anyone for adding to our already over-large medical vocabulary, but Richard Asher¹ has performed a notable service in providing a term to describe a common but nameless syndrome, which now takes its bow to the world as Munchausen's syndrome. In naming it after the famous Baron von Munchausen, Asher respectfully dedicates it to him, for the persons affected are like the baron in that they have always travelled widely and present stories both dramatic and untruthful. The characteristic clinical record is painfully familiar to most doctors, as Asher describes it:

The patient . . . is admitted to hospital with apparent acute illness supported by a plausible and dramatic history. Usually his story is largely made up of falsehoods; he is found to have attended, and deceived, an astounding number of other hospitals; and he nearly always discharges himself against advice, after quarrelling violently with both doctors and nurses.

Immediate diagnosis is difficult, except of course to those who have seen the patient before; hospital front-gate porters and casualty department sisters often develop great skill in this direction. Useful pointers suggested by Asher are a multiplicity of scars, often abdominal, a mixture of truculence and evasiveness in manner, an immediate history that is always acute and harrowing yet not entirely convincing, and a wallet or handbag stuffed with hospital attendance cards, insurance claim forms and litigious correspondence (the more experienced subject may suppress this last-mentioned feature). No doubt it is professionally humiliating for a doctor to be deceived by these patients' fabrications, but it may be disastrous if he neglects two points about these patients that Asher mentions—firstly, that their stories usually contain "fragments of complete truth", and secondly, that they are often quite ill. Full use may be made by the patient of past experience of organic illness, but it is important for the doctor, if possible, to appreciate any real current symptoms or signs. The syndrome itself usually resembles an organic emergency. Asher lists the following well-known varieties of patients: those of the acute abdominal type (*laparotomophilia migrans*), who are the most common and sometimes have had so many operations that the development of genuine intestinal obstruction from adhesions may confuse the picture; those of the hemorrhagic type, who specialize in bleeding from lungs, stomach or elsewhere; those of the neurological type, who present themselves with paroxysmal headache, loss of consciousness or peculiar fits. To the onlooker the patient's attitude appears to be remarkably senseless, as he gains, in Asher's words, "nothing except the discomfiture of unnecessary investigations or operations". His great desire appears to be to deceive, to "lie for the sake of lying", and he may appear many times at the same hospital, hoping to meet a new doctor upon whom to practise his deception. The subject of Munchausen's syndrome must be distinguished from the deliberate malingerer, though the two groups merge with considerable overlap. Asher suggests, on the question of motive, that one of the following mechanisms may be involved: a desire to be the centre of interest and attention—sometimes a manifestation of the "Walter Mitty syndrome"; a grudge against doctors and hospitals, which is satisfied by frustrating or deceiving them; a desire for drugs; a desire to escape from the police; a desire to get free board and lodgings for the night. Some of these are also the malingerer's motives, but the malingerer will not usually submit to any more inconvenience than he can avoid. The true followers of the mendacious baron accept indignities usually without protest and often with apparent relish. Perhaps most of them are, as Asher suggests, hysterics, schizophrenics, masochists or psychopaths of some kind, but they deserve more careful study as a group. Perhaps they will receive it, now that they have achieved the status of a syndrome all their own.

¹ *Circulation*, December, 1950.

² *The American Journal of Medicine*, May, 1950.

¹ *The Lancet*, February 10, 1951.

Abstracts from Medical Literature.

RADIOLOGY.

Tuberculosis of the Ribs.

SAMUEL A. LEADER (*American Journal of Roentgenology*, March, 1950) states that tuberculosis of the ribs is rather uncommon; he reports six cases encountered in the last two years, and emphasizes some of the diagnostic problems. From the radiological standpoint, at least three types of lesions were seen: (i) an expanding, cyst-like lesion, entirely within the ribs; (ii) destruction at the lower border of the rib; (iii) complete destruction resembling a metastatic malignant lesion. The occurrence of complications, such as pathological fractures, tuberculosis of other bones and occasional tuberculous mediastinal lymphadenitis, is noted.

X-Ray Findings in Acute Friedländer's Pneumonia.

B. FELSON, L. S. ROSENBERG AND M. HAMBURGER, JUNIOR (*Radiology*, October, 1949), have studied 16 cases of acute Friedländer's pneumonia and reviewed the X-ray films. They state that lobes involved by Friedländer's pneumonia are "voluminous" or "bulky", and that the increase in size causes bulging of the neighbouring interlobar fissures. It was noted in a number of cases that the advancing border of the pneumonic process, although not in contact with the pleural surface or interlobar fissure, was unusually sharp and distinct. Although it sometimes occurs in other types of pneumonia, the appearance of a sharply defined advancing border of the pneumonic process should lead one to suspect Friedländer's infection. Abscess formation occurs frequently, and it is the authors' belief that the early appearance of rarefaction within an area of acute lobar pneumonia should suggest the possibility of Friedländer's infection. The infiltrate in acute Friedländer's pneumonia is unusually dense, but other types of pneumonia may cast shadows of similar density, and it is therefore of little differential value.

Pulmonary Manifestations of Tuberculosis in Children.

THOMAS LODGE (*Journal of the Faculty of Radiologists*, July, 1950) states that epituberculosis was the name originally given to extensive pneumonia-like shadows in the child's lung without the grave constitutional effects of tuberculous bronchopneumonia. There would appear to be two possible explanations for these appearances. The first is that there is an area of toxic oedema surrounding a small true tuberculous focus. In other words, it was thought to be an allergic response to tuberculo-protein. The second view is that the condition is an absorption collapse. Although those who hold this conception agree that the classical radiological signs of collapse are often absent, they claim that their explanation is established by the high percentage of positive bronchoscopic findings of bronchial occlusion. Unfortunately not all the

published radiological pictures present the classical appearance of epituberculosis. Moreover, bronchial stenosis usually produces straightforward collapse or obstructive emphysema. It seems that though some degree of collapse may be present in many cases, the main cause of the shadows is tissue infiltration by cells and fluid. The natural history of these lesions is not that of collapse, and in many cases the cortex of the lobe (the *Lappenmantel* of Felix) is not involved. Perhaps the safest dictum, in the present incomplete state of knowledge of functional lung anatomy, is that both factors, collapse and consolidation, may operate together. The main point to appreciate is that, despite the alarming radiological picture, the course is usually benign. The shadow will persist for months while the child is clinically well and then disappear in a few weeks, sometimes leaving no trace at all, and sometimes, as it ebbs, uncovering in the centre of the lobe the original underlying focus in various stages of calcification. An appearance similar to epituberculosis may suddenly develop during the course of miliary tuberculosis. Finally it should be realized that so-called epituberculosis is merely one of the manifestations of a primary infection, and the soundest way of resolving the problem would be to jettison altogether the meaningless term "epituberculosis".

The Radiographic Appearance of Interatrial Septal Defect.

R. F. HEALY, J. W. DOW, M. C. SOSMAN AND L. DEXTER (*American Journal of Roentgenology*, May, 1950) have made an analysis of the radiographic and haemodynamic changes observed in twelve cases of interatrial septal defect. Significant radiographic findings included cardiac enlargement, right atrial and right ventricular enlargement, and dilatation and hyperactivity of the pulmonary artery. The aorta appeared small in three cases. Left atrial enlargement was not observed. In seven cases, posterior enlargement of the right ventricle simulated left ventricular enlargement. A correlation of the radiographic appearance with the haemodynamic changes revealed that a small left-to-right shunt through an atrial defect produced no recognizable changes in the heart or pulmonary artery. A large shunt usually resulted in pronounced changes, but an exception was noted. Small interatrial shunts associated with pronounced pulmonary hypertension were indistinguishable radiographically from large interatrial shunts without pronounced pulmonary hypertension. Aneurysmal dilatation of the pulmonary artery, usually associated with Lutembacher's syndrome, was found at necropsy in one subject without a lesion of the mitral valve.

Ætiology of Peroneal Spastic Flat Foot.

R. I. HARRIS AND T. BEATH (*The Journal of Bone and Joint Surgery*, November, 1948) state that the term peroneal spastic flat foot is often applied indiscriminately and inaccurately to certain rigid flat feet which arise from quite different causes. There are at least three such entities and there may be others. Two are related to each other, since in each there is

anomaly of tarsal structure with fusion of the calcaneus to the navicular, or to the talus. In these cases there is a deformed rigid foot without peroneal spasm; the peroneal muscles are shortened adaptively in consequence of valgus deformity. The third entity is inflammatory arthritis of the tarsal joints with reflex peroneal muscle spasm, which twists the foot into a valgus position. In the early stages this may fairly be called peroneal spastic flat foot, though it would be more informative to emphasize the nature of the pathological process which gives rise to the spasm rather than the mechanism whereby deformity is produced. In the first entity, rigid flat foot due to talo-calcaneal bridge (*synostosis talo-calcanea* or *coalescentia talo-calcanea*), there is fusion of the accessory *os sustentaculi* to the talus and calcaneus. The complete form is represented by a bone bridge arising from the calcaneus immediately behind the sustentaculum, spanning the subtalar joint and fusing with the body of the talus (*synostosis talo-calcanea*). The bone bridge is not always complete, in which case there may be a fibrous bond between the calcaneus and talus (*syndesmosis talo-calcanea*) or a cartilaginous bond (*synchondrosis talo-calcanea*). The bridge may be a synostosis in one area, and a syndesmosis or synchondrosis in another; or the two masses may establish contact by means of an accessory joint (*articulatio talo-calcanea accessoria*). In every variation of the anomaly, except the last, there is some fixation of the talus to the calcaneus; it is complete if synostosis is present, and nearly complete if the lesion is a syndesmosis or synchondrosis. This complete or incomplete fixation of the talus to the calcaneus interferes with normal freedom of inversion-eversion movement, and movements of the talo-navicular joint are distorted. In consequence there is impingement of the articular margins of the talus and navicular, and very characteristic osteoarthritic lipping develops on the supero-lateral margin of the head of the talus. The second entity, rigid flat foot due to calcaneo-navicular bar (*synostosis* or *coalescentia calcaneo-navicularis*), is due to fusion of the anterior process of the calcaneus to the navicular. The fusion may be a complete bone bridge (synostosis) or there may be a dense fibrous band (coalescentia). The anomaly is believed to result when the rare accessory tarsal bone, *calcaneus secundarius*, fuses to the calcaneus and the navicular. When bone fusion is not complete it is often possible to recognize that the *calcaneus secundarius* has fused to the calcaneus or sometimes to the navicular. A calcaneo-navicular bar, by fixing the calcaneus to the navicular, restricts and distorts inversion-eversion movements. The foot is rigid, and abnormal stresses are thrown on the mid-tarsal joint. The clinical picture varies greatly. Unlike the talo-calcaneal bridge, which probably always causes deformity and disablement, the calcaneo-navicular bar may cause no deformity and no disability. This is particularly true when there is fusion by bone. The third entity is arthritic flat foot with peroneal spasm. When rheumatoid arthritis affects the tarsal joints it induces peroneal spasm with resulting valgus deformity. In the later stages there is permanent damage of the joints with fixation in the deformed

position. A clear distinction should be drawn between these cases and those with tarsal anomalies. Failure to recognize this anomaly, and to associate it with peroneal spastic flat foot, must be attributed to the difficulties of radiographic visualization. It is not seen in ordinary projections of the foot; a special projection is necessary if clear pictures are to be secured. In a normal foot this projection passes between the sustentaculum and neck of the talus, so that the joint space is shown clearly; when there is talo-calcaneal fusion the joint space is replaced by a bone bridge. A secondary change is seen in lateral radiographs, namely, marginal lippling of the talo-navicular joint on its dorsal surface. This is present to some degree even in children. With advancing years the lippling becomes still greater. Such lippling on the dorsal margin of the talo-navicular joint in a case of peroneal spastic flat foot is invariably associated with anomalies of the tarsal structure which limit movement of the subtalar joint—either a calcaneo-navicular bar or, more commonly, a talo-calcaneal bridge. The anchoring effect of these bone fusions deranges the normal inversion-eversion movement of the subtalar and mid-tarsal joints and throws abnormal stresses upon the talo-navicular joint, thus causing impingement of the articular margins and the development of osteophytes.

PHYSICAL THERAPY.

Primary Reticulum-Cell Sarcoma of Bone.

B. L. COLEY, N. L. HIGINBOTHAM AND H. P. GROESBECK (*Radiology*, November, 1950), after a critical analysis of cases encountered at the Memorial Hospital, New York, present a summary of 37 cases which can be classified as primary reticulum-cell sarcoma of bone. They state that this growth is a malignant tumour histologically identical with reticulum-cell sarcoma elsewhere in the body. It arises in a single focus in bone and is capable of regional and distant metastases. It is most common in males. It may occur at any age; but almost three-fourths of the cases in this series occurred in the second, third and fourth decades. It is characteristically accompanied by a striking absence of general debility. The clinical and radiological signs and differential diagnosis, in particular from Ewing's tumour, are discussed. The tumour is remarkably radio-sensitive, and the treatment of choice is carefully administered deep X-ray therapy; an estimated tumour dose of 3000r to 4000r is given. Of 21 patients eligible for inclusion in five-year survival studies, 10 are alive at the end of five years. Of 13 patients, five are alive at the end of ten years. Metastasis and recurrence may take place as late as ten years or more after therapy; but the metastatic and recurrent lesions may be further controlled by radiation therapy or surgery.

¹³¹I in the Diagnosis and Treatment of Hyperthyroidism.

R. A. SHIPLEY, J. P. STORAASLI, H. L. FRIEDELL AND A. M. POTTS (*American Journal of Roentgenology*, October,

1950) state that the avidity of thyroid tissue for iodine is high in normal subjects and is greatly increased in cases of thyrotoxicosis. Experimentally it was found that after a tracer dose of radioactive iodine, average retention in the thyroid was 44.7% in normal subjects and 83.2% in cases of hyperthyroidism. In the therapeutic application of radioactive iodine the dose was estimated in terms of microcuries per gramme of gland. The average dose was seven millicuries for patients with a diffuse goitre and 13.2 millicuries for those with a nodular goitre. It will be noted that a higher dose was given to patients with nodular glands as previous work had indicated that this type were more resistant to treatment. It was found that sustained remission was obtained in 80% of cases after a single dose. The first evidence of clinical improvement was usually noted at the end of about six weeks. Maximal clinical improvement and regression of the gland was most often noted at ten to twelve weeks. There were four cases of myxoedema following treatment in the group of diffuse goitres, none in the nodular type. Regression of the gland to normal size occurred in 74% of the diffuse type and in 11% of the nodular type. In their final analysis the authors consider that in cases in which the operative risk is high, ¹³¹I may prove of great value. There is no danger of immediate mortality nor of such complications as hypoparathyroidism or severance of the recurrent laryngeal nerve. The incidence of myxoedema is higher than that following surgery, ranging from 2% to 9%, when the goitre is of the diffuse type. It is not yet possible to relate non-response or the occurrence of myxoedema with the dose given, but it is believed to be due to variations in uptake among the different follicles of the gland.

X-Ray Therapy of Osteomyelitis of the Fingers.

A. H. BAKER AND F. FRIEND (*American Journal of Roentgenology*, November, 1950) state that in a small series of eight cases of osteomyelitis of the fingers treated by X-ray therapy in England, this method was found uniformly successful. They point out that persistent osteomyelitis following infection of a finger may cause disability for months or even permanently. Small doses of X rays initiate repair or prevent exuberant local reaction by their differentiating effect on inflammatory cells. Under the mistaken idea that bacteria or leucocytes must be destroyed, too high and too many doses may be given. Differentiation of cells takes time and requires not more than 50r to 80r administered once a week. For very acute infections the dose should be reduced to 10r to 25r. A weekly dose of 100r should never be exceeded and should not be applied for longer than eight weeks. Local and general reactions should be carefully watched and the dose adjusted accordingly. The results were better when the treatment was started early, as then loss of bone by sequestrum formation and destruction of joints could be prevented. In three cases amputation, which seemed to be inevitable, was averted. The sinuses healed, the inflammation of the soft parts disappeared, and the patients lost all fear of using the affected digits.

At the same time, and in a matter of weeks, the appearances of the radiographs changed considerably. The destroyed bone became recalcified, and its normal pattern reappeared. Neither local nor general antibacterial therapy could accomplish what small doses of X rays achieved.

Transvaginal X-Ray Treatment of Cervical Cancer.

A. W. ERSKINE (*Journal of the Faculty of Radiologists*, October, 1950) states that Caldwell designed and used an intravaginal tube in the treatment of cervical cancer in 1901; but the technical difficulties were tremendous because of the dangers of electric shock and accidental over-exposure of the vulva, and the method had to be abandoned till shockproof apparatus became available. Lately there has been much interest in the method because there is enough experimental evidence to show that it gives better distribution of radiation than any other. The author thinks that there is enough clinical evidence to show that it is by far the most efficient method of destroying the primary tumour. The principal objection to the method is the difficulty of exposing a field large enough to include the entire lesion and the lateral fornices. Merritt, and later Caulk and De Regato, exposed a large field by applying X rays to the cervix and the tissues around it through a speculum of the Ferguson type, made of material transparent to X rays. Arneson thought it better to use an oval field rather than a circular one, since it is desirable to expose as large a field as possible, and it is more important to expose the lateral vaginal fornices than the bladder and rectum. The author, however, retracts the vaginal walls in order to use a short anode-surface distance, and this means that the beam expands more rapidly, the time of treatments is considerably shortened, and there is less danger of over-exposing the rectum. He discusses the four main modifications of the transvaginal method with the advantages and disadvantages of each. He now uses an expanding speculum with four hinged blades, and this meets the requirements of even exposure of a sufficiently large oval or oblong field, good visibility, comfort, a short anode-surface distance, rigidity and protection of the vulva. The percentage depth dose at three centimetres is 60% with 135 kilovolts, an anode-surface distance of 25 centimetres and a half-value layer of 8.0 millimetres of aluminium. With 200 kilovolts and a half-value layer of 1.0 millimetre of aluminium, the depth dose at three centimetres is 70%. The dosage which has been employed is 1000r measured in air, administered once a week for five doses. The optimum dosage has not yet been established. The author has now treated 221 patients suffering from cervical cancer with various modifications of the transvaginal method, and all patients have been closely followed. The results of treatment of 125 patients treated prior to June 1, 1945, show that 48.8% have survived for five years; 92% had lesions in Stage I, 64.7% in Stage II, 26% in Stage III and 16.7% in Stage IV. The most frequent complication was vaginal atresia, which occurred in 48 of the 221 cases. There were 15 cases of severe cystitis and 12 of proctitis.

Public Health.

REPORT OF SPECIALIST IN TUBERCULOSIS, REPATRIATION COMMISSION HEADQUARTERS.

(Continued from page 458)

Research Projects.

The Medical Research Council of the Privy Council in Great Britain is investigating the development of drug resistance in the tubercle bacillus. Promising laboratory studies on the effect of chlorophyll on tubercle bacilli have been reported in Copenhagen, but this work is still in the experimental phase. Work on parasitized bacteria in Stockholm shows that *Bacillus proteus*, as the result of repeated subcultures on tubercle bacilli, can become tuberculocidal; this has opened up a further field for the study of non-pathogenic organisms as possible sources of tuberculostatic antibiotics. "Conteben" is being further studied in Scandinavia and in the United States.

At the Oxford neurosurgical centre work on the treatment of tuberculous meningitis continues. The efficacy of streptomycin therapy has been increased in a small group of patients suffering from tuberculous meningitis, by provoking the Koch reaction with the intrathecal administration of large doses of tuberculin in the form of purified protein derivative. This causes focal reaction at the area of the tuberculous infection through breaking down of the local cellular barrier. A similar approach in pulmonary tuberculosis is being studied at the Brompton Hospital with intramuscular administration of tuberculin and antibiotics.

Carvalho, of Lisbon, has injected radioopaque material into the pulmonary vasculature by cardiac catheterization, and has shown that in areas of lung involved in fibrocavernous pulmonary disease and in collapse from various causes, there is great reduction in the circulation particularly the capillary circulation. This explains the relative inefficacy of drugs which depend on reaching the areas of disease via the blood-stream. In lesions such as milary tuberculosis, the capillary bed is relatively undisturbed, and here streptomycin and other chemotherapeutic agents are most effective.

Bolt, of Germany, has shown that the complication of silicosis by emphysema produces a significant rise in pulmonary artery pressures. If post-operative emphysema follows pneumonectomy the pulmonary artery pressures are significantly raised, and this fact is used as a plea for the use of thoracoplasty after pneumonectomy.

Brieger, at Cambridge, is investigating the life history of the tubercle bacillus and the exact mechanism whereby it causes disease. It is found that its effect on tissue cells is not a toxic phenomenon. In his study of the life history of the avian type of tubercle bacillus, he has shown that there is a stage in its life history when its structure is analogous to that of the fungi, and when it is not acid-fast for staining purposes.

B.C.G. Vaccination.

Throughout Scandinavia, B.C.G. vaccination has been used extensively and is claimed to have played a large part in assisting the control of tuberculosis. It appears impossible to determine how much this procedure is responsible and how much other circumstances are responsible for the reduced mortality rate. In England there is considerable anxiety over the pressure being brought to increase the scope of B.C.G. vaccination. Every effort is being made to restrict vaccination to those people most at risk, but it appears to be in danger of indiscriminate use with inadequate control and follow-up. The danger lies in the possible development of a false sense of security. The logical procedure seems to be to restrict vaccination to those groups and ages known to be at risk and to keep them under observation, so that reversion of the result of the Mantoux test from positive to negative may be noted at the time it occurs. Artificially acquired immunity probably confers less protection than naturally acquired immunity, but it is more controlled and safer. B.C.G. vaccination is of value, but it is only one factor in a complete programme. Normal hygienic measures are overwhelmingly important in the prevention of tuberculosis, as are sound economic and social conditions in increasing the inherent individual resistance to disease.

Rehabilitation in Tuberculosis.

An essential part in control of tuberculosis requires the return of the patients to the community as economic and

productive units. In England, but not in Scandinavia, full recognition is given to this problem. The emphasis in England is placed on work as a part of treatment, as only through work and exercise can the capacity of the patient on leaving the sanatorium be gauged. For those unable to return to their former occupation, this period of working also constitutes training for future employment, which may be provided within workshops or factories associated with the hospital. It was stressed that the only effect of vocational training was that provided in the factory alongside the experienced worker; such training must be regarded as part of the patient's treatment and be regulated by the medical requirements of the patient. Rehabilitation and reemployment of patients even with chronic bilateral disease and grossly restricted activities are being achieved in England; very few patients cannot be gainfully employed. However, they should be under constant medical supervision, and their place of employment should not be too far from the sanatorium.

The only prospects of satisfactory vocational training would appear to be in the following places: (i) In factories staffed partly by tuberculous patients who will work alongside ordinary labourers. This does not appear to be practicable. (ii) In village settlements. This has proved very satisfactory in England, where particularly favourable settlement conditions have been built up over the years. Some patients after training in the village factories return to other centres and are absorbed into industry elsewhere. (iii) In workshops and small manufacturing centres located at sanatoria. Training to be of a definite vocational nature must be coordinated or fit into the plan of some general industry into which the worker may be absorbed. Uncoordinated work in a workshop for occupational therapy is not sufficient. Suitable industries should be selected in which the employers and employees will be prepared to accept a small proportion of physically disabled men, and these should be duplicated in sanatorium workshops, the patient being trained in the actual work to which he will progress. During this time it is necessary to have regular medical supervision and also training selection through the employment of teams comprising the medical officer, the training officer, the officer who has the liaison with industries, and the social worker. A positive purpose on the part of the medical officers and close cooperation between industries—both employers and employees—and the sanatorium are essential. Objections may be raised by trade unions and by healthy workers because of the fear either of the employment of cheap labour or of the transmission of infection, but these objections can be overcome. When patients are considered suitable for rehabilitation, a positive purpose must be in view from the beginning; the patients at the sanatorium should be gainfully employed for a period as part of their treatment and should be fit for employment when discharged from the institution.

Non-Tuberculous Pulmonary Conditions.

A summary is presented of current views and work overseas on cystic lungs, bronchiectasis and emphysema, carcinoma of the lung, adenoma of the bronchus, sarcoidosis, chronic suppurative disease of the lungs, spontaneous pneumothorax, cardiac surgery and carcinoma of the oesophagus.

General Observations.

General observations are presented of the work on the Repatriation Commission in England, surgical equipment and supplies, films and sanatorium training.

Recommendations.

A series of recommendations is made, certain of which concern only the Repatriation Commission. Those of general interest are as follows:

1. In collaboration with the Department of Health and the Commonwealth Tuberculosis Advisory Council, the faculties of medicine at the universities might be approached to ascertain the possibility of introducing a system of two weeks' residency for medical students at sanatoria, to help to bring an appreciation of the problems of tuberculosis and allied chest diseases to general practitioners. Clinical teaching on this subject at general hospitals should be further encouraged.

2. An occasional post-graduate course on diseases of the chest, such as is carried out at Cardiff for a period of ten weeks, should be provided for selected officers who are to carry out specialized duties, for example, in migrant camps. It may be desirable within Australia to establish a special post-graduate qualification in diseases of the chest.

3. The provision of additional facilities for the overseas training of experienced medical officers is desirable.

4. The establishment of a more complete training programme for the rehabilitation of patients by use of the sanatorium workshops more in the role of factories should be explored.

5. To conform with overseas practice, the terms "tuberculosis beds" and "specialist in tuberculosis" should be changed to "chest beds" and "specialists in chest diseases".

6. It would be desirable for Australia to enjoy the privileges of interchange of information conferred by membership of the International Union against Tuberculosis.

7. In the light of the superfluity of senior registrars in chest diseases in England and the fact that the promotion of most trainee specialists to full specialist status in England may be slow, Australia should seek to entice specialists to Australia.

Special Correspondence.

CANADA LETTER.

FROM OUR SPECIAL CORRESPONDENT.

Of interest to Australians will be the recently developed clinic for cerebral palsy children in the predominantly rural province of Saskatchewan. Located in Regina, it has been arranged to meet the special needs of the families of these children. One particular method adopted has been to provide a four-week hospital period, during the first half of which diagnostic and psychometric assessment is carried out, and in the second half of which the parents of the child are brought into the training and development programme to be followed. Designed to cover relatively isolated areas, where expert therapy is scarce, the clinic lays its emphasis on self-help. Parents are helped in the care of the palsied child through seeing trained therapists at work. In a sense, too, they are helped by seeing other parents with equally crippled children, in that a group psychotherapeutic occurs. The parent, through group lectures and through personal counselling, is fortified with useful and workable techniques to further the child's training at home. Given a child with a normal intelligence quotient, it is remarkable what progress can be made through such clinics. Dental work is done during the month at the clinic, and the hospital bills are undertaken by the Province's prepaid compulsory scheme. Braces are paid for by the parents. Much of the equipment needed for the training of the child at home in the various skills is made by the fathers who attend. The mother learns the educational methods best suited to her child. Combined sessions called "Parents' Institute" are conducted by the Province's mental health experts, a sound preventive emphasis being thus ensured. Moving pictures of each child are taken both for analysis of gait and for clinical follow-up. Travelling physiotherapists visit the child in his home situation later and serve to complete the picture of this new but well-planned clinic. It has been supported by one of the Federal Health grants-in-aid to the Provinces.

The Federal Department of National Health and Welfare has just released an excellent study entitled "Physicians in Canada" covering the period 1949-1950. To start at the production end first, 705 physicians graduated from Canada's nine medical schools in 1949—the largest number since the record year of 1924, when 740, mostly veterans, graduated. With the opening of new schools at Ottawa and Vancouver, and the change in Saskatchewan from a two-year to a full four-year course, rather larger numbers can be expected in the future. In 1951 it is estimated that 857 will graduate. The annual rate of attrition is not as high as some would imagine. On the average 225 doctors die per year, the distressing thing being the number under the age of fifty years. (The physician's quandary in this respect is succinctly stated in the American expression that if a doctor dies young he had "a brilliant future before him", but that if he lived to an old age he had "missed his calling".) The emigration of physicians, largely to the United States, accounted for 113 physicians in 1949, while another 220 left the country to pursue post-graduate study. There is always a reduced number returning in this group. Specialists accounted for 25% of all Canada's physicians in 1949 and general practitioners for 48% only. The remainder are engaged in Government service, teaching, public health, internships *et cetera*. This all means that, although Canada

boasts one active doctor per 977 of the population, there is a relative scarcity of general practitioners; for example, in Montreal there is one general practitioner to 2049 people, and in St. John, New Brunswick, only one for 3002 people.

The knighthood conferred upon Sir Macfarlane Burnet has been widely acclaimed in Canada. The recent articles by Professor Abbie and by Sir John Medley are being read in Canada with great interest because of the report of the Royal Commission now before Parliament on Federal aid to the universities.

NEW ZEALAND LETTER.

FROM OUR SPECIAL CORRESPONDENT.

Post-Graduate Course in Obstetrics and Gynaecology.

A FORTNIGHT'S post-graduate course in obstetrics and gynaecology was arranged by Auckland University College at Cornwall Hospital, Auckland, from March 5 to 16, 1951. This is the first major educational effort of the new foundation for post-graduate studies under Auckland University College. It is an interim effort pending the filling of the chair. Sir Bernard Dawson, recently retired from the chair of obstetrics and gynaecology at the University of Otago, undertook the organizing of the course. Dr. F. A. Maguire, of Sydney, accepted an invitation to take part in the lecturing and operation sessions and also to give a public lecture. Sir William Gilliatt's visit to New Zealand to inaugurate the New Zealand Regional Council of the Royal College of Obstetricians and Gynaecologists happened to coincide with the course, and he too participated in lectures and discussions. A full range of topics was covered, and speakers from Auckland and other parts of New Zealand took part. Fifty-five medical men enrolled from most parts of New Zealand.

Medical Research Council.

The first meeting of the newly incorporated Medical Research Council takes place in May, 1951, and the membership has been gazetted as follows:

Ex-officio members are Dr. John Cairney, Director-General of Health (chairman), Sir Charles Hercus, Dean of the Medical Faculty at the University of Otago, and Mr. F. R. Callaghan, Secretary of the Council of Scientific and Industrial Research.

Appointed members and the bodies making recommendations are Sir James Elliott (Board of Health), Dr. P. P. Lynch (British Medical Association), Dr. L. Bastings (Royal Society of New Zealand), Dr. R. A. Aitken and Dr. F. Walsh (Academic Board of the Senate of the University of New Zealand), Professor F. H. Smirk (New Zealand Committee of the Royal Australasian College of Physicians) and Dr. Douglas Robb (New Zealand Committee of the Royal Australasian College of Surgeons).

Obituary.

David Whyte, F.R.C.S. (England), F.R.A.C.S., died suddenly in Wellington on December 29, 1950, at the age of sixty-one years. He was the son of the Reverend Alexander Whyte, a pioneer of Presbyterian Church schools in New Zealand. He graduated at the University of Otago in 1912, and went to England after serving as a resident medical officer in Dunedin Hospital. He joined the Royal Army Medical Corps in 1914 and served in France and on the North-West Frontier of India. He became a Fellow of the Royal College of Surgeons in 1922, worked with Ernest Miles for a period, and returned to practise as a surgeon in Wellington. He was surgeon to Wellington Hospital for twenty-five years at different grades, becoming a senior surgeon in 1940. He gave freely of his time to committee work in the Wellington Hospital, to the Cancer Campaign Society and the British Empire Consultation Clinic, to the Post-Graduate Committee of the Wellington Hospital, to the cancer work of the Royal Australasian College of Surgeons, and to *The New Zealand Medical Journal*, of which he was assistant editor for some years.

He was industrious and devoted to his practice and the welfare of his patients. He was well read in surgical literature and showed courage and insight in developing new fields, particularly in abdominal and esophageal surgery. He had a great charm and manner, which endeared him to patients, nurses and colleagues and everywhere inspired great confidence.

Correspondence.

ARTHUR WILSON MEMORIAL FUND.

Sir: Dr. Arthur Mitchell Wilson, D.S.O., M.D., B.S., F.R.C.O.G., died on December 19, 1947. He gave a full life of splendid service to the community. During World War I he enlisted early in the Australian Army Medical Corps, and was sent to France in the Australian Imperial Force, where he eventually commanded a field ambulance and was awarded the Distinguished Service Order for distinguished service in the field. On his return home, he joined the honorary staff of the Women's Hospital, Melbourne, where he gave splendid service for nearly thirty years, both as clinician and teacher. As a specialist and consultant, Arthur Wilson had now developed a large obstetrical practice, and he was universally recognized as one of the greatest obstetricians Australia had produced.

There is a general and widely expressed desire by his former colleagues, by members of the medical profession generally, and also by very many who have benefited greatly by his professional skill, to create a worthy memorial. It is felt that this memorial fund should find invaluable expression in the establishment of a memorial hall for obstetrical and gynaecological research and study, which would perpetuate the memory of a very great man, and would advance the art and science of obstetrics, which were his lifelong work and endeavour. No need is greater in this young country than the promotion of a healthy and virile population by a healthy and safe motherhood.

Donations may be sent to Dr. C. K. Churches, Honorary Treasurer, 122 Flinders Street, Melbourne, C.I., which will be acknowledged in this journal.

Yours, etc.,

122 Flinders Street,
Melbourne, C.I.
March 12, 1951.

EDWARD R. WHITE.
Honorary Organizer.

The following donations have been received and are acknowledged with thanks: Dr. G. B. Bearham, £100. Dr. C. K. Churches, £100. Dr. L. W. Gleadell, £100. Dr. Arthur Hill, £100. Dr. W. M. Lemmon, £100. Dr. R. M. Rome, £100. Dr. Edward White, £100. Dr. R. G. Worcester, £100. Dr. H. G. Furnell, £50. Dr. Frank Hayden, £50. Lady Herring, £20. Professor L. Townsend, £20. Dr. T. K. Wilson, £10. Lady Leitch, £5 5s.

THE SCOPE AND TEACHING OF ORTHOPÆDIC SURGERY.

Sir: Dr. Hugh Barry is to be congratulated, and thanked, for his excellent letter under the above heading in THE MEDICAL JOURNAL OF AUSTRALIA of March 10, 1951. It is a pleasure to confirm and support all he says. On the training of students I would like to mention a question which for some years I have put to a number of newly qualified resident medical officers, without it ever being answered in the affirmative: "Have you at any stage in your medical course been obliged to follow up and keep records of one single fracture from the time of injury to the time of maximum recovery?" Many will start off, "Oh yes—we saw fracture cases in casualty—in the wards—or in the out-patients"; but none has ever been able to stand up to the "beginning to end" requirements without meeting which they can learn little.

Yours, etc.,

143 Macquarie Street,
Sydney,
March 19, 1951.

C. C. McKellar.

RECENT ADVANCES IN RHEUMATOLOGY, PHYSICAL MEDICINE AND REHABILITATION.

Sir: In his excellent survey, "Recent Advances in Rheumatology, Physical Medicine and Rehabilitation", your contributor, Dr. Philip Alpers, does not differentiate cases of Marie-Strümpell arthritis in his consideration of the treatment of rheumatoid arthritis. To some doctors the words may conjure up the concept of "bamboo spine", but in this State, Marie-Strümpell arthritis is being diagnosed in an early stage and is found to affect almost any joint in the body, as well as the spine.

The importance lies in the dramatic effect produced by X-ray therapy in adequate dosage to the affected joints. Of all the different conditions referred for deep therapy, I find this is the most gratifying to myself and to the patients. It behaves as a disease entity quite distinct from rheumatoid arthritis. I wish to condemn the American term "rheumatoid spondylitis", which would link the two together. Cases with multiple joint involvement are sometimes misdiagnosed as rheumatoid arthritis, and they are transformed when given deep therapy. On the other hand, deep therapy in rheumatoid arthritis is unspectacular, having a restricted usefulness only in selected cases, where collaboration with a rheumatologist is essential.

Because of the proved value of deep therapy every attempt should be made to diagnose all cases of Marie-Strümpell arthritis as early as possible. This would probably be helped by dropping the old term "ankylosing spondylitis", for it is often not ankylosing, nor is it a spondylitis.

These cases should not be rested or immobilized, and gold therapy is of limited value, but otherwise the various therapeutic measures set out by Dr. Alpers should be applied to them. The intention is not to minimize those procedures but to emphasize the important effect of radiotherapy, and to attract attention to this interesting disease.

Yours, etc.,

Perth,
March 8, 1951.

ALAN J. M. NELSON.

RESEARCH INTO THE PREVENTION OF BLINDNESS.

Sir: The Ophthalmological Society of Australia (British Medical Association) has had a communication from the Chairman of the National Health and Medical Research Council saying that the Council is prepared to receive applications from individuals who wish to carry out research into the prevention of blindness. Such applications should indicate the subject of research in detail, the personnel to be employed and the exact amount required for any particular project.

Any applications so made by research workers will receive the consideration of the Council on the same basis as other applications for grants for research, that is, each individual application will be considered on its merits.

I have been instructed to ask if you will publicize this matter and request that any medical man who would care to undertake such research should, in the first instance, communicate with me and I shall be glad to give him any information in my possession.

Yours, etc.,

A. L. LANCE,
Honorary Secretary,
The Ophthalmological Society of Australia
(British Medical Association).

27 Commonwealth Street,
Sydney.

March 10, 1951.

THE SYNDROME OF LAMELLAR CEREBELLAR DEGENERATION ASSOCIATED WITH RETINITIS PIGMENTOSA, HETEROTOPIAS, AND MENTAL DEFICIENCY, WITH REPORT OF A CASE.

Sir: In answer to the letter by Dr. O'Day, published in the journal on March 3, 1951, I must state that the description of the eye which I examined seems to have become somewhat confused.

When received by me the eye had been in formalin fixative for many months, and the best method of inbedding in such circumstances was by double impregnation, that is, celloidin and paraffin, and the stains used were hematoxylin and eosin, phosphotungstic acid hematoxylin, Roger's stain for neurofibrils and Weil's myelin stain.

To the naked eye the pigment was seen to be in the posterior half of the retina, the anterior border of the pigmented area being fairly well defined at the meridian and the pigment extending back to the disk. Microscopically a good deal of shrinkage was found to be present due to the prolonged fixation. Throughout the eye the rod cells have disappeared, but some cones remained, particularly in the macular and adjacent areas. In some areas all layers of the retina were reduced in size, and in these layers ganglion cells were somewhat diminished in numbers. In the anterior part of the retina slight cystic change was

present. The pigment in the retina was found in all layers, but was most prominent around the retinal vessels, which were thickened and hyalinized. The pigmentary epithellum of the retina was markedly hypoplastic, and in some areas it had lost its pigment. At times it was flattened so as to be almost unrecognizable. The chorioid was thinned in places, and its vessels showed hyaline thickening. The optic nerve did not show any gross demyelination.

The features described above conform to the changes usually found in *retinitis pigmentosa*.

Yours, etc.,
VINCENT. J. MCGOVERN.

Department of Morbid Anatomy,
Fairfax Institute of Pathology,
Royal Prince Alfred Hospital,
Camperdown,
New South Wales.
March 13, 1951.

PINK DISEASE OR INFANTILE ACRODYNIA: ITS NATURE, PREVENTION AND CURE.

SIR: I wish to express my appreciation of the comments made in the letter by Dr. H. B. Graham and Dr. Robert Southby in your issue of February 25, 1950.

It is evident from discussions with eminent paediatric authorities in the United Kingdom and the United States of America and Europe that the prevalence and severity of the disease as manifested in South Australia is a matter for surprise if not for incredulity.

I endorse all that is said on the theory of causation which we put forward. There is no direct evidence that it is valid, but there is a mass of indirect evidence in the published investigations of others that pink disease may be an acute manifestation of a fractional hypofunction of the supra-renal cortex, which may exacerbate or even cause other disorders of childhood.

It is by no means improbable that endemic factors are involved. Endemic goitre has its unexplained sporadic counterpart in non-endemic areas, and hyperthyroidism has provided fantastic regional differences in its manifestation.

Had it not been for the cooperation of the Commonwealth Division of Soils, whose estimations of the plasma sodium by quantitative spectrography guaranteed an accuracy of $\pm 5\%$, I should never have given the matter a second thought.

Yours, etc.,
C. STANTON HICKS.

Department of Human Physiology and Pharmacology,
The University of Adelaide,
Adelaide,
Undated.

Received for publication March 9, 1951.

THE PHARMACEUTICAL BENEFITS ACT.

SIR: The recently imposed restrictions under the *Pharmaceutical Benefits Act* coming on top of the removal from the "benefits" of nine-tenths of the medicines for which the ordinary householder pays so dearly, render the Act virtually useless; it is no longer of material help to the family man or to the poor. So far as "Chloromycetin" is concerned, this drug, which is now manufactured synthetically, is not in short supply; but it is expensive, which is the only reason for its being virtually withheld by the present Government. For my own part, I have notified the Commonwealth Department of Health that, in the event of a death resulting from the Government's parsimony, the case will be referred to the Coroner. I have also suggested that, since it is ridiculous that country patients should be deprived of valuable antibiotics at the whim of a city committee—no matter how well chosen—release of the drug should be automatic if in one-doctor towns the medico concerned considers it necessary, and in larger towns if two men are agreed thereon. Methinks that the British Medical Association has been led up the garden path. Certainly the present position is insulting to country practitioners, who after all alone know their own cases and who, as heavy taxpayers, are unlikely to use expensive drugs unnecessarily. What is more important, the position is menacing to country patients when these drugs are needed. Perhaps I should add that I was one of the few members of the British Medical Association who used

successfully and with great benefit to patients the earlier scheme which did really offer free medicine. The monetary benefits to patients nowadays are not a fraction of what they were then. Then also the British Medical Association was led up the garden path, to the great detriment of patients throughout Australia.

Yours, etc.,
A. JACOBS.
20 Williams Road,
Narrogin,
Western Australia.
February 18, 1951.

TRANSACTIONS OF THE ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS.

SIR: The Association of Industrial Medical Officers will shortly be publishing the *Transactions* of the Association. Publication will be quarterly, and will contain papers read at meetings of the Association and the groups of the Association, as well as contributions from other members.

It is hoped that most of these papers will be of practical value to doctors practising medicine in industry. I am therefore writing to you to ask whether you would care to make this new publication known through the medium of your journal.

Subscriptions will be £1 per annum, and there will be four copies each year, in April, July, September and January.

The *Transactions* will not in any way compete with *The British Journal of Industrial Medicine*, which is a publication mainly confined to original work, whereas the *Transactions* hope to deal with the practical side and other matters of interest.

All communications concerning the journal should be addressed to me as honorary secretary of the Association.

Yours, etc.,
J. A. A. MEKELBURG,
Honorary Secretary,
Association of Industrial Medical
Officers.

Peck Frean and Company, Limited,
Keetons Road,
Bermondsey, London, S.E.16.
England.
March 3, 1951.

Medical Prizes.

THE SHORNEY PRIZE.

THE Shorney Prize, established for the purpose of perpetuating the memory of the late Herbert Frank Shorney, M.D., F.R.C.S., lecturer in ophthalmology in the University of Adelaide from 1926 to 1933, will be offered for the third time in 1952, and will be for work in diseases of the ear, nose and throat.

The relevant clauses of the Statute are as follows:

3. A post-graduate prize, to be called the Shorney Prize, of the value of £100, shall be awarded to the candidate who in the opinion of the examiners has made the most substantial contribution to knowledge in the subjects of ophthalmology or of diseases of the ear, nose and throat. The prize shall be offered alternately for work in ophthalmology and in diseases of the ear, nose and throat.
4. The recipient must be a graduate of an Australian university.
5. The material submitted for the prize may be either a thesis or published work in medical or scientific literature.
6. Each candidate must declare that the work described is his own.
7. The prize shall be offered for competition from time to time as the accumulations of the fund permit.
8. The prize shall be offered at least twelve months before the last day for the receipt of applications.
9. The prize shall not be awarded on any occasion unless in the opinion of the examiners the material submitted is of sufficient merit.

Applications, accompanied by three copies of the evidence which the candidates wish to submit in support, must reach the Registrar, the University of Adelaide, not later than April 1, 1952.

Post-Graduate Work.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

PROGRAMME FOR MAY.

Courses Suitable for Candidates for M.D. Part II and M.R.A.C.P.

Pædiatrics.

Under the direction of Dr. Mostyn Powell the course in pædiatrics which commences in April will continue on May 1, 3, 8 and 10, as set out in the April programme.

Endocrinology.

A course in endocrinology, under the direction of Dr. K. D. Fairley, will be held on the following dates at 2 p.m.: May 15, Dr. J. Bolton, at the Royal Melbourne Hospital, "Disorders of the Pituitary Gland"; May 17, Dr. R. Andrew, at the Alfred Hospital, "Disorders of the Adrenal Glands"; May 22, Dr. R. M. Biggins, at St. Vincent's Hospital, "Disorders of the Parathyroid Glands"; May 24, Dr. K. D. Fairley, at the Royal Melbourne Hospital, "Disorders of the Thyroid Glands"; May 29, Dr. J. W. Johnstone, at the Women's Hospital, "The Endocrinology of the Female"; May 31, Dr. E. Downie, at the Alfred Hospital, "The Endocrines and Carbohydrate Metabolism". The fee for this course is £3 3s., or 10s. 6d. per lecture.

Courses for Part I of Higher Degrees and Diplomas.

Courses suitable for candidates for Part I of higher degrees and diplomas will be continued during May with certain intervals during the university vacation period.

Demonstration at Flinders Naval Depot.

A demonstration at Flinders Naval Depot will be conducted by Dr. Alwynne Rowlands on "Trauma, Constitutional Effects, Shock, Hæmorrhage". This is by arrangement with the Royal Australian Navy.

Enrolments.

Enrolments for courses should be made with the Secretary of the Post-Graduate Committee, 394 Albert Street, East Melbourne. Telephone: JM 1547-8.

Obituary.

MILTON GEANEY.

We are indebted to Dr. J. G. Wagner for the following appreciation of the late Dr. Milton Geaney.

By the death of Milton Geaney at Brisbane on February 13, 1951, Queensland lost a valued surgeon. Many people mourn the passing of a staunch friend and a wise adviser. His medical colleagues will miss him both personally and professionally. Though for some years previously he had been aware of the danger to his health, he had engaged in full professional activity until one year before his death, when he became totally unable to continue. He bore the trials of this incapacity with the fortitude that one would expect of him.

Many of us had known Milton Geaney since his school days at the Brisbane Grammar School, and later at the University of Sydney and Saint Andrew's College, as well as in his years of practice in Brisbane. He topped his first year at Sydney, winning the Renwick, Collie and Jarvie Hood Prizes. He graduated bachelor of medicine and bachelor of surgery in 1921, and after a term as resident medical officer at Royal Prince Alfred Hospital obtained his Fellowship of the Royal College of Surgeons of England in 1925. He then commenced general practice in South Brisbane with Dr. R. A. Meek, whom he later succeeded. He was elected a Fellow of the Royal Australasian College of Surgeons in 1930. In 1940 he transferred to Wickham Terrace to practise as a specialist surgeon. He was honorary assistant surgeon at the Mater Misericordie Hospital for thirteen years and a senior surgeon on the part-time staff of the Brisbane Hospital until his retirement through illness. In his work as a surgeon he showed those qualities

of humanity, wisdom and judgement that are best developed in the specialist by a wide experience of general practice. It was characteristic of Milton Geaney that he deliberately chose this path to his specialty after he had obtained his higher degree.

From 1942 to 1948 he served as a member of the Council of the Queensland Branch of the British Medical Association, where his contributions to the discussions gave evidence of a thoughtful mind and mature experience.

He was unfit for service with the armed forces, yet he performed his war service in a civilian capacity by unflagging energy and long hours of duty. No surgical or other emergency ever went unattended even if he was worn out by fatigue. He never claimed his own ill health as an excuse, but shouldered his full responsibilities, and more. He was one of the trustees of the Queensland Medical War Benefit Fund, and later a member of the local committee of the Federal Medical War Relief Fund.

Milton Geaney had a passion for hard work that was an example and an inspiration to his fellow Australians. In particular, his students and house surgeons gained from him an example of thoroughness as well as sound and skilful surgery.

We offer our sincere sympathy to the bereaved family, Mrs. Geaney, her sons, Dr. Bruce Geaney and Mr. Peter Geaney, and her daughter, Miss Margaret Geaney.

Dr. K. B. Fraser writes: My lifelong friendship with "Blue" Geaney commenced when we started school at the Brisbane Grammar School together in 1911. I have a vivid recollection of him on our first day at school when, as a volunteer, he was one of the contestants in a very torrid wrestling bout under the eye of the gymnasium instructor. This spirit of eagerness and endeavour, which inspired him to do things with all his heart and soul, remained with him throughout his life.

On leaving school he entered Saint Andrew's College, Sydney, and set out on his medical career. He graduated in February, 1921. During his course he was a very keen Andrew's man, entering into all the college activities with unrivalled enthusiasm. It was in boxing, however, that he found his *métier*; rather slow on his feet, he could take any amount of punishment, and he had a most powerful right counter, this in spite of an old supracondylar fracture, which had left him with some limitation of extension at the right elbow joint. In 1919 with characteristic vigour and determination he succeeded in winning the university welter-weight championship. After two years at Royal Prince Alfred Hospital as a resident medical officer he left for England, and in 1925 was the first of our year to gain his Fellowship of the Royal College of Surgeons.

Bitterly disappointed at being rejected for the Australian Imperial Force, on medical grounds, at the outbreak of war in 1939, he never spared himself in the interests of the civil population during the strenuous times that followed.

In his later years he was at his happiest on the golf links, where, with his flair for being a little bit out of the ordinary, he always insisted on putting with one hand.

In 1925 he married Miss Peggy Barlow, of Sydney. Fifteen months before his death he had the satisfaction of seeing his elder son, Bruce, graduate in medicine.

My abiding memories of "Blue" will be of his sustained enthusiasm for whatever he undertook, his unvarying kindness to his patients and his colleagues, and the almost quixotic generosity which never failed him and which endeared him to all those who were lucky enough to cross his path in his all-too-short life.

Dr. F. W. R. Lukin writes: Milton Geaney had one outstanding characteristic, and that was his extreme activity. In his student days he always was the last to return from the field of sport, and the afternoon was not complete until he had finished off with "a couple round the oval". This attitude he carried into his work; when others had stopped he was still carrying on. If there was insufficient to occupy his time completely he turned to outside activities, such as the making of anæsthetic machines, many of which are still in constant use. This great activity was directed in the interest of his patients, and he never spared himself in their service; this was certainly a factor which shortened his life.

"Blue" had many friends, an occasional opponent, but no enemies. To his friends he was a stimulant and radiated good fellowship at every meeting. His counsel was readily available to those in need of advice and his help to those in need of assistance. As a member of the British Medical Association Branch Council for many years he influenced the deliberations of that body, and his opinions were always received and considered with the very greatest respect. He

was probably more in touch with the recent graduates and juniors of the profession than any other senior practitioner, and he will be sorely missed by a much greater number of colleagues than is usually the case.

CHARLES ALFRED HOGG.

WE regret to announce the death of Dr. Charles Alfred Hogg, which occurred on March 15, 1951, at Sydney.

Research.

MEDICAL RESEARCH COUNCIL.

TRAVELLING AWARDS IN OPHTHALMOLOGY AND OTOTOLOGY, 1951-1952.

THE Medical Research Council invite applications for travelling awards for the academic year 1951-1952 to be provided from the Alexander Pigott Wernher Memorial Trust, in accordance with a scheme approved by the trustees. Under the terms of the bequest, the funds are to be applied "towards the prevention and cure of blindness and deafness in the United Kingdom and British Empire, and in particular research in connexion therewith by financing medical men and students within the Empire to study methods and practices in all countries of the world".

These awards are intended for suitably qualified medical graduates with some previous experience or research work in ophthalmology or otology; in general, fellowships will be made for periods of up to a year for specific research purposes, but grants may also be given for short-term visits abroad to study particular methods of investigation and

treatment in these fields. Fellowships will as a rule provide for appropriate maintenance allowance and travelling expenses, whereas grants for short-term visits (up to three months) will ordinarily cover travelling expenses only.

Forms of application for these awards may be obtained from the Secretary, Medical Research Council, 38 Old Queen Street, London, S.W.1., with whom applications must be lodged by May 1, 1951.

The Royal College of Obstetricians and Gynaecologists.

NEW SOUTH WALES STATE COMMITTEE.

A LECTURE on "Practical Points in Obstetrics" will be given by Sir William Gilliatt, K.C.V.O., M.D., M.S., F.R.C.P., F.R.C.S., F.R.C.O.G., in the Stawell Hall, 145 Macquarie Street, Sydney, at 8.30 p.m. on Thursday, April 5, 1951. The College invites all medical practitioners to attend. There will be no charge for admission.

Congresses.

WORLD PSYCHIATRIC CONGRESS.

THE International Congress of Psychiatry which was held in Paris in September, 1950, has been given the official title of the First World Psychiatric Congress. An international committee has been appointed to arrange the next congress in conjunction with UNESCO. Correspondence should be addressed to the office of the secretary of the World Psychiatric Congresses, 1, rue Cabanis, Paris XIVème.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MARCH 3, 1951.¹

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory. ²	Australian Capital Territory.	Australia. ³
Ankylostomiasis
Anthrax
Beriberi
Bilharziasis
Cerebro-spinal Meningitis	2(1)	..	..	..	..	..	..	2
Cholera
Coastal Fever(a)
Dengue
Diarrhoea (Infantile)	1	..	2(1)	..	..	..	3
Diphtheria	7(3)	4(1)	7(4)	1	5(3)	..	..	..	24
Dysentery (Amoebic)
Dysentery (Bacillary)	2(2)	..	..	..	..	..	..	2
Encephalitis Lethargica
Erysipelas
Filariasis
Helminthiasis
Hydatid
Influenza
Lead Poisoning
Leprosy
Malaria(b)
Measles	21	..	..	..	..	21
Plague
Polymyositis	59(17)	9(4)	31(2)	24(18)	1(1)	8(1)	..	..	132
Psittacosis
Puerperal Fever	1	..	..	..	..	..	1
Rubella(c)
Scarlet Fever	22(5)	24(5)	6(4)	3(2)	7(4)	..	..	..	62
Smallpox
Tetanus	1	..	..	..	..	..	1
Trachoma
Tuberculosis(d)	26(17)	15(12)	9(5)	5(5)	11(2)	5(3)	..	..	71
Typhoid Fever(e)	1	..	..	..	3(2)	2	..	..	6
Typhus (Endemic)(f)
Undulant Fever
Well's Disease(g)	6	..	..	..	..	..	6
Whooping Cough	1(1)	..	..	..	..	1
Yellow Fever

¹ The form of this table is taken from the *Official Year Book of the Commonwealth of Australia*, Number 37, 1946-1947. Figures in parentheses are those for the metropolitan area.

² Figures not available.

³ Figures incomplete owing to absence of returns from the Northern Territory.

⁴ Not notifiable.

(a) Includes Moxman and Sarina fevers. (b) Mainly relapses among servicemen infected overseas. (c) Notifiable disease in Queensland in females aged over fourteen years. (d) Includes all forms. (e) Includes enteric fever, paratyphoid fevers and other *Salmonella* infections. (f) Includes scrub, murine and tick typhus. (g) Includes leptospirosis, Well's and para-Well's disease.

Medical Appointments.

Dr. D. C. Bennett has been appointed officer of health for the hundreds Ridley, Forster and part Bowhill, District Council of Marne, South Australia.

Dr. L. D. Cowling has been appointed officer of health for the hundreds of Angas, District Council of Marne, South Australia.

Dr. D. A. Cameron has been appointed a trustee of the Boys' Grammar School, Ipswich, in pursuance of the provisions of the *Grammar Schools Act, 1860*, of Queensland.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Clowes, Gordon Joseph, M.B., B.S., 1951 (Univ. Sydney), Orangeville, Camden.

Mitchell, Colin Ashton, M.B., B.S., 1950 (Univ. Sydney), Royal Hospital for Women, Paddington.

Geeves, Richard Banks, M.B., B.S., 1951 (Univ. Sydney), Royal Newcastle Hospital, Newcastle.

The undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

Beck, Keith Francis, M.B., B.S., 1950 (Univ. Sydney), Lewisham Hospital, Lewisham.

Caspersonn, Douglas James, M.B., B.S., 1951 (Univ. Sydney), Balmain and District Hospital, Balmain.

Chambers, Ross Campbell, M.B., B.S., 1951 (Univ. Sydney), 8 Dobroyd Parade, Haberfield.

Channells, Raymond Robert, M.B., B.S., 1951 (Univ. Sydney), Royal North Shore Hospital, St. Leonards. Cohn, Lotar, registered in accordance with the provisions of Section 17 (1) (c) of the *Medical Practitioners Act, 1938-1950*, 168 Pacific Highway, Roseville.

Comins, Thomas Benjamin, M.B., B.S., 1951 (Univ. Sydney), 96 Milson Road, Cremorne.

Enis, Zenon, registered in accordance with the provisions of Section 17 (1) (c) of the *Medical Practitioners Act, 1938-1950*, 63 Queen Street, Ashfield.

Iceton, Sydney John, M.B., B.S., 1951 (Univ. Sydney), Royal South Sydney Hospital, Zetland.

Joseph, Farmey Vincent, M.B., B.S., 1947 (Univ. Sydney), Wagga Wagga, New South Wales.

Keller, Arthur William, M.B., B.S., 1951 (Univ. Sydney), Wallsend District Hospital, Wallsend.

Killen, John William, M.B., B.S., 1950 (Univ. Sydney), Base Hospital, Tamworth.

Latham, Geoffrey Rourke Welsford, M.B., B.S., 1951 (Univ. Sydney), Balmain and District Hospital, Balmain.

Mulhearn, Richard John, M.B., B.S., 1951 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

Orr, John Morgan, M.B., B.S., 1951 (Univ. Sydney), 50 Homebush Road, Strathfield.

Stephens, Frederick Oscar, M.B., B.S., 1951 (Univ. Sydney), Royal South Sydney Hospital, Zetland.

Turner, Brian Baxter, M.B., B.S., 1951 (Univ. Sydney), 15 Chapel Road, Vaucluse.

Wajnryb, Abraham, registered in accordance with the provisions of Section 17 (1) (c) of the *Medical Practitioners Act, 1938-1950*, 231 Queen Street, Campbelltown.

Walker, John Bernard, M.B., B.S., 1951 (Univ. Sydney), 5 Day Avenue, Kensington.

Walsh, Clement Henry, M.B., B.S., 1944 (Univ. Sydney), 7 Victoria Avenue, Middle Cove, East Willoughby.

The undermentioned have been elected members of the South Australian Branch of the British Medical Association:

Koop, Peter Malcolm, M.B., B.S., 1949 (Univ. Adelaide), Woolpunda, via Morgan.

Howard, Juliet Hardman, M.B., B.S., 1950 (Univ. Adelaide), 10 Frederick Street, Gilberton.

Hicks, Edward Paul, M.B., B.S., 1950 (Univ. Adelaide), 8 Toowong Avenue, Kensington Park.

Wallman, Richard John Robson, M.B., B.S., 1950 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.

Wallman, James Douglas Robson, M.B., B.S., 1950 (Univ. Adelaide), 30 Grange Road, New Hindmarsh.

Hoopmann, Eric Paul, M.B., B.S., 1949 (Univ. Adelaide), Madang, New Guinea.

Birdseye, Sydney Alick, M.B., B.S., 1950 (Univ. Adelaide), 11A Hindmarsh Square, Adelaide.

Rischbieth, Richard Harold Charles, M.B., B.S., 1950 (Univ. Adelaide), 34 Church Terrace, Walkerville.

Diary for the Month.

APRIL 3.—New South Wales Branch, B.M.A.: Council Meeting.

APRIL 4.—Victorian Branch, B.M.A.: Branch Meeting.

APRIL 4.—Western Australian Branch, B.M.A.: Council Meeting.

APRIL 5.—South Australian Branch, B.M.A.: Council Meeting.

APRIL 6.—Queensland Branch, B.M.A.: Branch Meeting.

APRIL 6.—Tasmanian Branch, B.M.A.: Council Meeting.

APRIL 10.—New South Wales Branch, B.M.A.: Executive and Finance Committee. Organization and Science Committee.

APRIL 13.—Queensland Branch, B.M.A.: Council Meeting.

APRIL 17.—New South Wales Branch, B.M.A.: Medical Politics Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney).—All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL, or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia; Medical Officer, South Australian Railways.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others, not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £4 per annum within Australia and the British Commonwealth of Nations and £5 per annum within America and foreign countries, payable in advance.